Agricultural Outlook Forum'98

Speech Booklet 1

Monday, February 23

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THE COOPERATIVE RENAISSANCE: EMPOWERING PRODUCERS IN AN ERA OF GREATER RISK

by
Robert Carlson
President, North Dakota Farmers Union

Background

Farmers' interest in forming new processing cooperatives began in earnest in the early 1990s spurred by several developments that threatened traditional operating methods. Low commodity prices and the prospects for reduced federal farm program support turned producers' attention toward new ventures as an economic survival response. New trade agreements increased competition and threatened to reduce prices for wheat and livestock producers. Meanwhile, vertically-integrated corporations were expanding factory-style farms in poultry, hog and potato production.

It became evident to the members and leadership of National Farmers Union and its affiliated state organizations that family farmers and ranchers would need a self-help strategy to diversify and stabilize their income. A key element of the strategy is to foster the development of farmer-owned enterprises that allow the producers of raw agricultural commodities to gain the economic benefit of processing, wholesaling or retailing a food item.

North Dakota and Minnesota farmers originated the cooperative renaissance and were well suited to lead it. Northern Plains farmers have a strong cooperative heritage and are familiar with cooperative businesses. In addition, the high risk of production agriculture on the arid plains demands that producers have a safety net or some other income to cushion steep drops in production or prices. The phenomenal success of the Crystal Sugar Cooperative in the Red River Valley provided a positive example of what value-added processing could do for farm income. Finally, the North Dakota Legislature established a fund called the Agricultural Products Utilization Commission to help finance feasibility studies of various new ideas. Although most of those

ideas did not go beyond the study stage because they did not offer enough financial reward to justify the farmers' investment risk, some bore fruit.

Cooperative Advantages

Several new cooperatives that began operating in the mid-1990s are very successful. They include the Dakota Growers Pasta Company, the North American Bison Cooperative and two hog farrowing cooperatives. Two major corn processing cooperatives have recently formed alliances with private companies.

It is difficult to make accurate generalizations about these new cooperatives. But there are some unique advantages that the successful processing cooperatives have in common. Perhaps the most important advantage is improved quality control because of the relationship of the producer-owner to the processor. The producer provides the product and the identity of the raw commodity can be preserved right through to the final processed product. The producers take pride in their product and that motivates them to provide the best quality commodity to their new cooperative. But perhaps more importantly, the producer is under contract to provide a specific quantity and quality to the processor. This identity-preserved connection from producer to finished product is unique to farmer-owned cooperatives and it is often envied by private industry.

Quality control advantages enable cooperatives to fill the niches in a huge consumer food market of over $705 billion. In this huge market, compare the return on equity between farmers and food companies. The farm value of raw commodities has not changed much since 1970, but the retail value of food has multiplied.

The average US farmer's return on equity is 2%; for US food companies it is 14%. Given these economic returns, it is not surprising that farmers are beginning to recognize the great opportunities in value-added agriculture.

The owners of the new cooperatives are farmers who recognize that the food business does not begin with what they produce. Rather, it begins with what consumers choose to purchase. These consumers are demanding new products, greater variety and more choices. There are around 15,000 new food products introduced in the US each year. Many fail, but the point is that the food industry is a very large and dynamic market that offers potential for new cooperative ventures if they can be capitalized and managed and marketed successfully.

A 1996 North Dakota State University study comparing farmer-investors and non-investors in new cooperatives found that the investors were motivated by the desire to increase farm income, reduce marketing risk, gain access to value-added markets, and gain a consistent market outlet. The investors were also, on average, younger, more educated, farmed more land, and had more assets and debts than the non-investors.

Success or Failure

The new cooperatives need five essential elements for success. The seed is the idea for a venture that is bigger than the individual can undertake alone. The idea then needs to be studied carefully and dispassionately by the most competent firm one can employ. The most critical questions to answer in the study are: Where is the market, where are the members and what is the probable return on equity?

The greatest challenge is to find enough farmer-investors to adequately capitalize the new cooperative. These are generally farmers who are willing to take a new risk and who have some understanding of cooperative business. Lenders are nearly always required, and, if they are experienced cooperative business lenders, their advice and counsel can be tremendously valuable to the new venture. USDA cooperative development grants and loans, such as those delivered through the Rural Electric and Telephone Cooperatives, are important aids in the struggle to adequately capitalize a new cooperative. Rural Development Agency grants to value-added cooperative initiatives have enabled several new farmer-owned ventures to begin formative steps.

Finally, the new cooperative needs talented management with the ability to run a business wisely and efficiently, as well as the ability to communicate with the farmer-owners and the board of directors. That often involves an element of luck in the selection of the general manager or CEO. If the business is not adequately capitalized to sustain two or three years of initial operating losses, then the co-op is dangerously vulnerable to failure.

Self-Empowerment through Cooperatives

The future for farmers and ranchers certainly appears to hold greater risk. If our future lies in being the world's lowest cost producers by reducing our production costs and by becoming more competitive – a euphemism used in agriculture to mean lower-priced commodities – then our future is rather bleak. A much more appealing and productive vision lies not in lowering ourselves to world agriculture's lowest common

denominator, but in finding new ways to diversify and stabilize family farm income so that producers can weather the volatile commodity prices that will accompany the so-called market-driven farm economy.

The value-added cooperative vision for agricultural producers also involves risk, but it is a risk that the farmer can control by determining their level of investment. More importantly, it is a financial risk that offers a reward in annual family income and in an improved asset section of the balance sheet. When new processing facilities are located in rural communities, there is additional value added through new jobs.

Farmers have always built cooperative businesses to gain an economic advantage for themselves. They feel the need to try to take greater control over the economic forces that impact their income and expenses and their lives. Farmers today face greater exposure to variables in prices and production; we are more vulnerable financially than we were in the recent past. The new cooperatives represent the best in self-help initiatives to empower our agricultural producers in the 21st century.

CENTRAL & EASTERN EUROPE AG. TRADE OUTLOOK

by
Jeffrey R. Beard
Director of Central European Operations
Pioneer Hi-Bred International Inc.

Good afternoon. It's a pleasure to join you today at this year's annual forum, and to speak to you about the trading and agricultural outlook in Central & Eastern Europe. I live in Vienna Austria, and my Central European responsibilities for Pioneer over the past five years has allowed me to see first hand the transition these emerging markets are undergoing. It's both a very difficult but exciting market: one filled with both peril and hope.

I have prepared some overheads showing grain areas, production levels, livestock, and net-export levels for all of the Central European countries. These countries are defined as Poland, the Czech Republic, Slovakia, Hungary, the former Yugoslav States, Romania, and Bulgaria. I'll also briefly address the Ukraine.

Many of the people here today are interested in the trading opportunities in the CEEC's for grain and livestock products. However, one cannot look at the data without having a sense of the historical context which these numbers and trends represent. Everyone knows the dramatic political changes which occurred in 1989 have affected these countries significantly. So let me first step back and provide some historical context, talk about the current reform program, and then we'll look at the data and trends. Finally, I'll conclude with some observations and thoughts regarding how these collective countries might improve their agricultural capabilities to western levels.

BACKGROUND

Combined, the ten Central European countries have a population of about 106 mil and a land area of 1.1 mil square km. This is about 29% of EU-15 population and 33% of EU-15 area. In terms of area, contribution to GDP and, in particular, share in total employment, agriculture is relatively more important in the CECs than in the EU. On average over 25% of the work force is employed in agriculture (*e.g.* a total number 9.5 mil, compared to 6% or 8.2 mil in the EU). Agriculture still contributes 8% to GDP (compared to 2.5% in the EU).

It is well known that the initial impact of the changes which resulted from the collapse in 1989 was a severe recession throughout the Central and Eastern European region. Sharply higher consumer prices, coupled with falling real income, led to a dramatic decline in overall food consumption. This led to lower prices for agricultural producers who, at the same time, faced sharply higher input prices and caused livestock inventories to plunge. The crop sector's response was slower, with 1990 and 1991 characterized by surplus production and high net exports. It was only in 1992 that crop production began to drop, due principally to yield decreases resulting from lower input use and poor weather. Area - particularly grain area - has changed little. Since 1995, the agricultural sector has begun to recover, building new, often informal, networks to supply farm

services and inputs, and to distribute food to city markets. Farm credit systems have developed, prices have now stabilized, and trade arrangements are being re-established.

By the end of 1997, all of the CECs have begun the process of recovery, in particular in the crop sector; however agricultural output remains below pre-transition levels (except Slovenia and Romania). Output was affected by the fall in demand as consumer subsidies were removed and the general economic situation deteriorated; also by the price/cost squeeze that agriculture faced (*e.g.* input prices rising much faster than output prices).

The degree of privatization and de-monopolization achieved in the up- and downstream sector differs between countries. Delays in the privatization and in the breaking-up of the large state monopolies in these up- and downstream sectors was one of the reasons for the price-cost squeeze the farm sector experienced in the first years of transition. When considering the relatively low level of farm-gate prices in the CECs, these downstream inefficiencies contributed (in the case of wheat, for example) to an almost doubling of the farm-gate price in order to get the product to the border. A return to profitability of farming will, to a large extent, depend on a competitive downstream sector and on a reorganization of the farm sector itself (*e.g.,* in bundling supply and strengthening its negotiating position vis-a-vis the food-processing industry and distribution channels).

AGRICULTURAL REFORM IN THE TRANSITION ECONOMIES OF CENTRAL AND EASTERN EUROPE

Extending the present CAP to the CECs will be too costly for the EU budget. The major obstacle is, however, not just the high cost. High food prices would make food expensive to the poor. Moreover, the use of supply management policies, which are a cornerstone of CAP, is highly inappropriate for CECs. The cost to the EU budget would be considerably lower if direct payments were not extended to farmers in CECs, the argument being that they should not have compensatory payments for incomes they never enjoyed. Regardless, EU support prices are expected to be reduced anyway as a result of the ongoing "Agenda 2000" and CAP reform discussions.

For the CECs, there are limitations to the extent prices can be allowed to rise. As long as food expenditures still consume 30% to 60% of household income and as long as inflation rates remain in the range of 10% to 30% a rapid increase in agricultural and food prices would be economically damaging and socially dangerous. The price gap between the CECs and the EU can therefore be expected to continue to exist for the foreseeable future, even if it will decrease more or less noticeably, depending on the product. Over time the price gap can be expected to be eroded to a certain extent by a relatively high inflation (not fully compensated by currency depreciation) and by a rise in domestic agricultural prices as food demand will recover more quickly than supply. In a situation of rising output, production costs will be more fully reflected.

I've already mentioned the up- and downstream inefficiencies that exist in the CEC's . According to a recent study published by the European Commission, farm gate prices for soft wheat in Poland and the Czech Republic were, in 1995, 80% and 60% (respectively) of EU prices, whereas producer prices for chicken stood at 100% in both countries. It stood at 80% for pork in Poland but at 100% in the Czech Republic and Hungary. Internal producer prices for cereals reached around

65% of Union prices for the period 1994-1996, whereas pig and poultry prices stood at EU price levels. Consumer prices have also been lower than in the EU. Retail prices for bread in Poland and in the Czech Republic were at 30% of EU level in 1995, whereas retail prices for chicken was at 70% in Poland and 50% in the Czech Republic. According to a study done in 1996 by the French agricultural research institute INRA, Hungary retail prices for bread in 1995 were 23% of the French level; for chicken it was 62% and 42% for pig meat. Given the expected economic growth in the applicant countries, it is estimated that their price levels will come closer to the European Union level before they become members. Currency movements will have an effect on this as if the accession countries' currencies appreciate in value (in relation to the Euro), the gap will narrow. The opposite occurs if their currencies devalue.

In all the applicant countries, agriculture is being supported and protected in various ways. With the exception of Estonia, in all other countries the market price of at least one cereals crop, normally wheat, is supported by market agencies which apply a minimum purchase price. In the oilseeds sector, only Lithuania provides market price support for rape-seed. Cereals' tariffs are relatively high and close to Union levels with the exception of the Czech and Slovak Republics.

When we look at the livestock sector, the picture of support is more varied. With the exception of Bulgaria and Estonia, milk prices are supported in all ten countries concerned. Market price support for meat production is found in Lithuania, Romania, Slovakia, and Hungary. For the region as a whole, pork and poultry consumption and production have recovered from the slump of the first half of the nineties, but consumption has not yet reached the level it had before communism fell. It is expected to increase as income levels improve. However, higher consumer prices as a consequence of membership in the Union may have an effect. The European Commission in a working paper on „Long term Prospects of Grains, Milk and Meat Markets", published in April, expressed the view that *consumption* of pig-meat will remain stable after accession while the growth in poultry consumption may slow. The Commission, on the other hand, forecasts that *production* of pork and poultry products will continue to rise, leading to a growing surplus in an enlarged Union.

Current members of CEFTA include the Czech Republic, Hungary, Poland, Slovakia and Slovenia. The general pattern emerging in these countries is a process of rationalization of their agriculture towards a market economy but with decreased levels of output, especially in the livestock sector. In terms of trade in food and agriculture, Hungary has maintained its position as a net exporter, but may be a net importer of corn and barley by 2000 unless yield levels improve. Net imports have risen in the Czech Republic, Poland and Slovenia while the net imports of Slovakia have remained stable. All CEFTA members have increased their agricultural and food imports from the EU but have made less progress in terms of exports to the EU.

EU-associated non-CEFTA countries include Bulgaria, Estonia, Latvia, Lithuania and Romania (although Romania, as of July 1st, has now joined the trade pact). These countries have also witnessed sharp declines in agricultural production during the transition period. As in the first group, the decline has been more severe in the livestock sector than in the crop sector. With respect to trade, the Baltic states have significantly increased their imports of food and agricultural products, Romania has remained an overall net importer but with variations from year to year and Bulgaria has retained its trade surplus despite the sustained shortfall in production.

EXAMINATION OF CEE GRAIN & FEED TRENDS

The ERS baseline for Central and Eastern Europe projects the region to become a growing net exporter of wheat, maize, and beef; a declining net exporter of pork and poultry; and a growing importer of soybean meal and soybeans over the projection period of 1997 to 2006. The region includes Poland, the Czech and Slovak Republics, Hungary, Romania, Bulgaria, Albania, and the former Yugoslavian states. The major shortcoming of their projection is that it assumes that none of the applicant countries will join the EU during this period....an assumption I do not share.

With this backdrop, let's now take a look at some of the data to see what's happening with grain, oilseeds and meat trends, focusing mainly on the net export trends so you can see where the opportunities for U.S. producers may lie. The Central Europe region is known primarily for being a wheat producer ***(slide 1).*** Poland is the most dominant, while Poland, Romania, and Hungary collectively make up about 60% of all CEC production. ***(slide 2)*** For corn the picture changes with the former Yugoslav states making up about a third, Romania a third, and Hungary providing about a fourth of all production. ***(slide 3)*** For barley, the dominance is spread out a bit more evenly across the northern countries with Poland contributing a third, then probably the Czech Republic a fourth, and with Slovakia, Romania, and Hungary making up the lion's share. ***(slide 4)*** When we look at grain production, wheat is almost double the output of corn for the primary C.E.E.C. countries, with barley trailing by a third. ***(slide 5)*** For oilseeds, sunflower is clearly the winner, and as you can see, soybeans are almost non-existent. ***(slide 6)*** Meat production-wise, this graph shows the slump caused as a result of the 1989 political changes, but also shows that the key meat product in these countries is pork, then increasingly poultry, followed by beef (whose levels have been trending downwards due to price).

One of the reasons for the continuation of this slump for beef is the low prices for both dairy and beef reflect the de-capitalization of herds (the costs to maintain production potential in quantity and quality terms are not being met). Also, for beef, the lower quality of production is based on *dairy herds* as most CECs have no specialized beef herds. So, for the livestock sector the recovery will be less dramatic. For dairy, we expect the net export potential to be significantly lower than in the pre-transition period, for while the *supply and demand* for meat will remain (more or less) in balance, it will be at a lower level as compared to the pre-transition period.

Moving to the individual countries, **Poland** is one of the largest agricultural producers, but is a consistent net importer for grains ***(slide 7),*** oilseeds ***(slide 8),*** and meat ***(slide 9).*** Although crop yields have been improving, productivity has not been able to keep up with increased consumption, forcing the country to be a net importer for much of their agricultural needs. In **Hungary,** we see a continued rise in wheat exports ***(slide 10),*** but corn may be in danger of becoming a net import crop as we see livestock numbers increase, and a shift toward using more corn in that feed-mix. In the oilseeds area ***(slide 11)*** we see increasing levels of sunflower oil exports, matching the hectarage increases, with rape-seed moving to a net export status after 1995, but soybeans remaining a net import. For meat ***(slide 12)*** the steady pork export trends probably correlate to the net corn comments I've already spoken to with beef and poultry remaining at fairly constant levels.

As we move down to the southern Balkans, **Romania** net **meat** exports *(slide 13)* show the increasing need to import beef and poultry, with pork exports trending downward. The disappearance of many of the export markets available during the communist era has reduced production levels for pork, coupled with some increasing domestic consumption as their recovery starts to take hold. For **grain** *(slide 14)* wheat exports will remain close to 800,000 MT, but corn exports will be reduced as local consumption for livestock will increase faster than yield gains in the field. For **oilseeds** *(slide 15)* we may see more sunflower exports as hectarage continues to rise. Soybeans will continue to be a net import crop for the foreseeable future. In **Bulgaria,** 1996 was a catastrophic year agriculturally as 1997 was politically and economically. *(Slide 16*) As you can see here, uncontrolled exports of **grains** in 1995 caused a bread crisis in 1996 resulting in a need for the government to import a high level of wheat. Good yields this past year resulted in a small level of net exports, which should continue to rise as yields return to pre-1989 levels. In **oilseeds** *(slide 17)* the drop in sunflower hectares combined with bad growing conditions have significantly reduced sunflower exports. Moving briefly to the **Ukraine**, the rising trends in grain exports *(slide 18)* is due more to decreased local consumption as a result of the recession. Hectarage planted remained more or less level (increasing for wheat, matching decreases in barley, with corn staying relatively flat). *(slide 19)* The Ukraine is a big sunflower producer and will consistently be a net exporter, while their net meat exports *(slide 20)* will be reduced for beef, and they will end up needing to import pork and poultry until their animal production capacity is restored. This next slide *(slide 21)* shows the decreasing production trends in this region for primarily beef and pork.

Moving briefly to the former **Yugoslavian** states *(slide 22)*, dominated by Serbia, has seen and continues to see disruptions, not only from the events of 1989, but the fallout from the 1991 war. Corn is king with net exports reaching 1 Million MT this past year. In oilseeds *(slide 23)* they are net importers for soybeans, sunflowers, and rape-seed. Until the political problems for this region are fully resolved, it will be difficult to predict the agricultural trends for this region.

Finally, finishing off with the former Czechoslovakian state *(slide 24)* we see in the **Czech Republic**, for **grain**, they will remain net importers of barley and corn while wheat exports will soar. In **oilseeds** *(slide 25)* they'll continue to import soybeans and sunflower while rape-seed exports (which the country is more suited to grow) should level off around 40,000 MT. In **Slovakia** *(slide 26)*, wheat will continue to be exported and barley imported, while in oilseeds *(slide 27)*, sunflower exports will increase as hectarage planted to this cash crop continues to rise. Rapeseed imports will primarily come from their Czech neighbors.

I did not plan to cover the **Former Soviet Union** (FSU) countries, however *(slide 28)* this slide shows their problems are continuing with no foreseeable turnaround in sight. We start to see some slight upturns beginning in 1999.

So, when we look at the region as a whole, the data begins to reveal the negative impact of the recession that followed after the 1989 transition period, but it also shows the recovery that is now beginning to occur. Demand for local consumption is increasing more rapidly than the population growth. Rising prosperity in this region will mean a shift toward consumption of more animal products, and that, in turn, will require higher levels of cereal crops to be used as feed to produce the animals. This *multiplier effect* means that a greater amount of cereals will be needed to supply the same amount of calories at the dinner table.

SUMMARY & CONCLUSIONS

The CEC agricultural sector stands ready to enter the new millenium with significant potential for increased output and gains in productivity over the next ten years. However, this conclusion is based on the following assumptions:

- The general income growth in the CECs will lead to a certain recovery of demand for agricultural products - in particular for livestock products - although the pre-transition levels of per-capita consumption will likely not be reached. A rise in animal production will also increase the feed demand for cereals.

- Agricultural production can thus be expected to continue to grow in coming years, albeit at a slow rate. Undoubtedly, the CECs have a significant production potential. The big structural difficulties to realize this potential in the foreseeable future should, however, not be overlooked.

- In most countries, completion of land reform and restructuring of the food chain will take at least another ten years, while farm structures can be expected to evolve even more slowly as the capability of agriculture to attract investment will remain limited.

- The use of inputs is recovering and will contribute to an increase in productivity, but is not likely to attain pre-transition levels, when taking into account the development of input-output price relationships and the previous practice of wasting inputs unnecessarily.

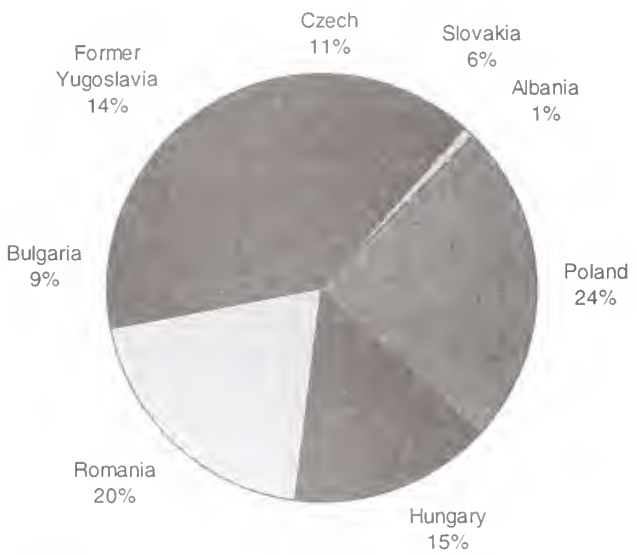
- By 2000 supply and demand patterns in CEC agriculture are expected to have fully adjusted to the transition shock. In the crop sector there will be a certain shift towards cereals and oilseeds. Over the longer time horizon, as crop yields begin to approach western Europe levels, the CECs will increasingly become net exporters, surpassing their potential compared to the pre-transition era.

So, although the CEE markets represent good export potential for U.S. producers in the short term, this picture will begin to change as their recovery progresses. Near-term, as their rate of GDP increases and diets improve, consumption trend increases will outstrip internal capability and these markets will be attractive to US producers. Longer term, however, we will see significant improvement in capability and capacity of their grain, dairy, and livestock sectors to the extent that these countries will be net exporters, and compete with US producers for the world's growth markets.

Even though existing structural problems remain as obstacles, the picture is becoming increasingly brighter. While the transition period is taking longer than expected, trade pacts (like CEFTA) are helping to gradually integrate the CEC economies, trade restrictions are being increasingly abolished, the volume of foreign direct investment is rising, and good progress is being made in the area of structural institutional reforms. The USDA painted the following optimistic scenario for the future in their recently published "Central & Eastern Europe: An Emerging Agricultural Exporter" (July 1997): "During the period to 2006, most of these obstacles will be overcome. As the CEC governments bring inflation under control, interest rates should fall, thus encouraging more investment. As land tenure becomes more permanent and capital markets improve, true land markets will develop. Eventually these developments should lead to more efficient farms."

Thank You!

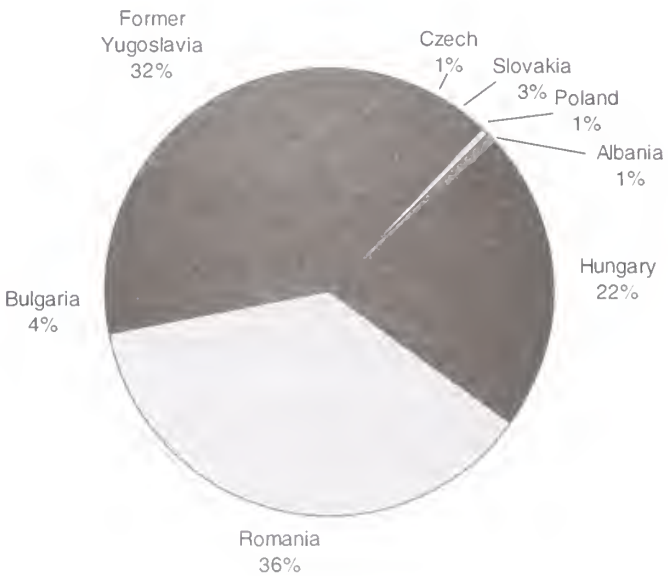
Central Europe Wheat Production - 1997



Total Production: 34,750,000 tones

1

Central Europe Corn Production - 1997



Total Production: 28,525,000 tones

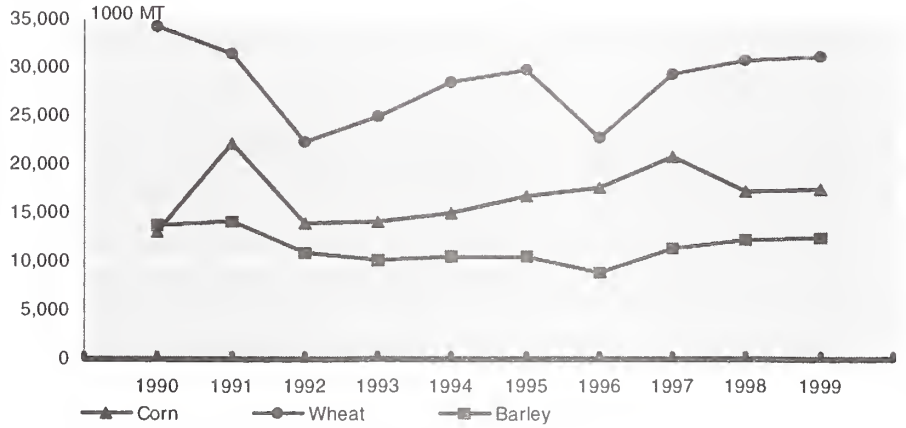
2

Central Europe Barley Production - 1997

Total Production: 12,055,000 tones

Grain Production

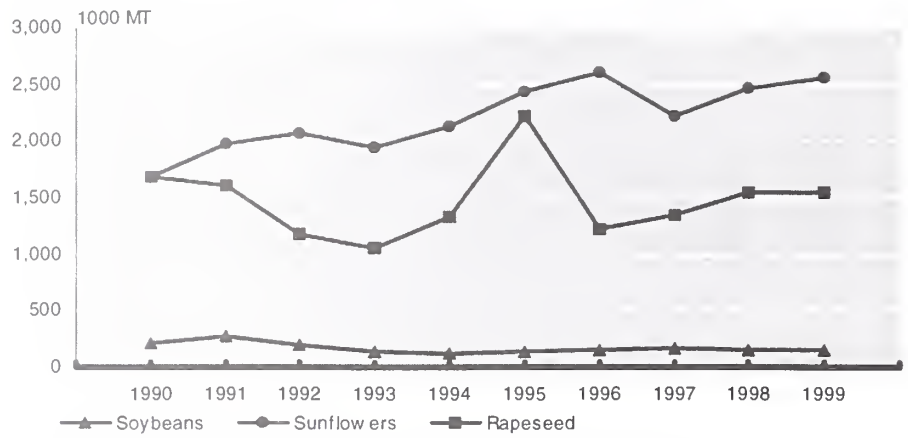
Region 1*



*Region 1 includes Bulgaria, Czech Republic, Slovakia, Hungary, Poland, & Romania.

Oilseed Production

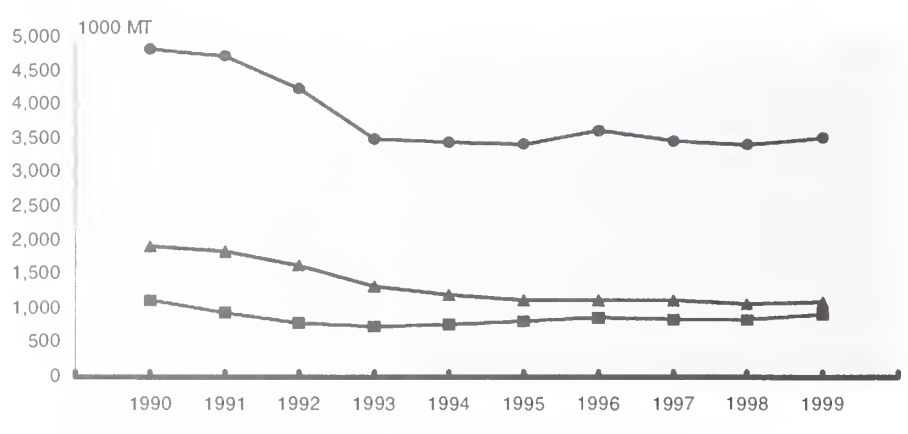
Region 1*



*Region 1 includes Bulgaria, Czech Republic, Slovakia, Hungary, Poland, & Romania.

Meat Production

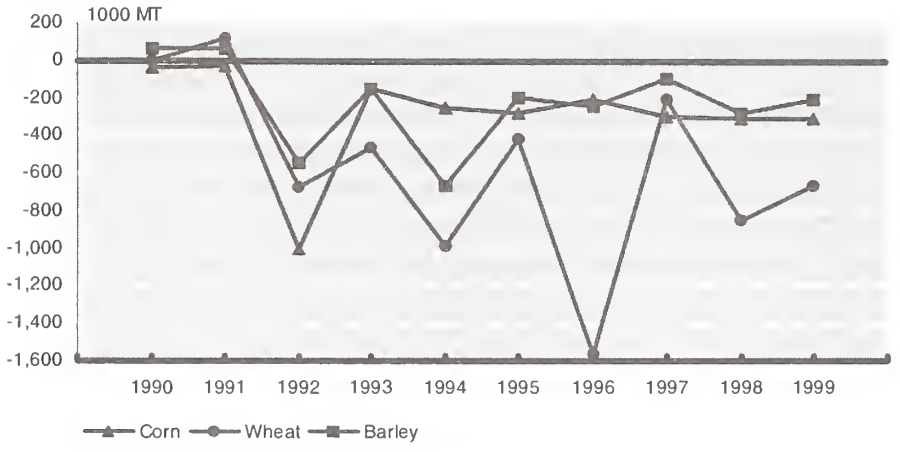
Region 1*



*Region 1 includes Bulgaria, Czech Republic, Slovakia, Hungary, Poland, & Romania.

Net Grain Exports

Poland



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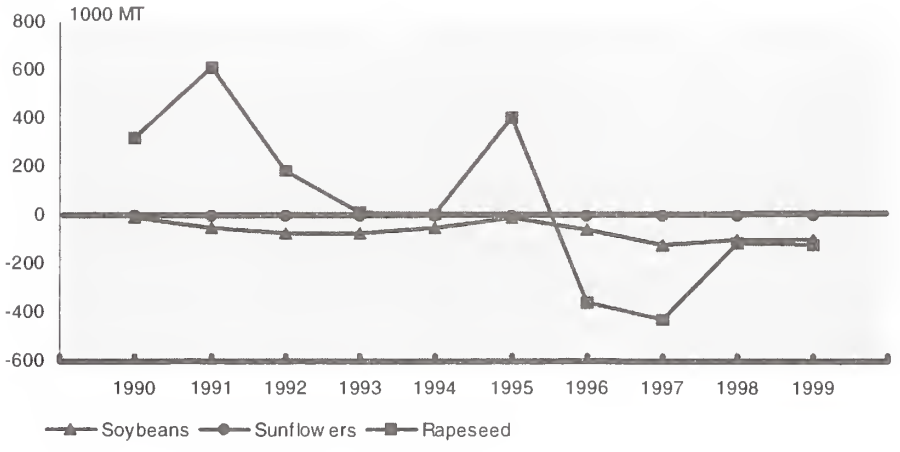
Net Oilseed Exports

Poland



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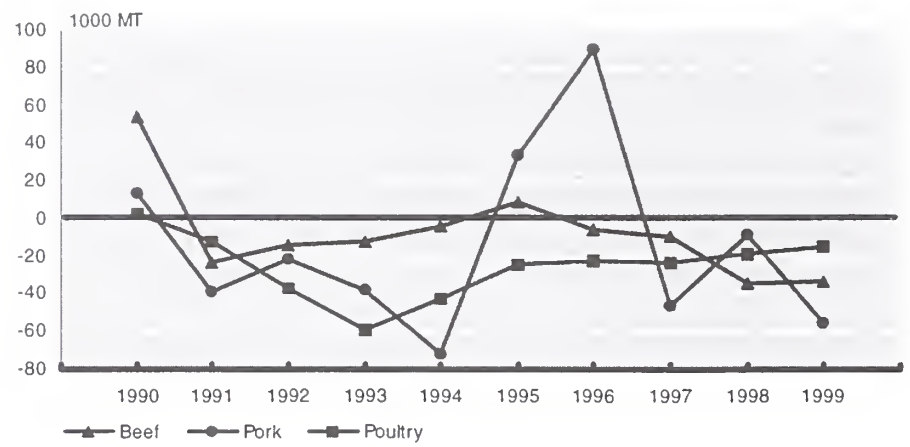
Net Meat Exports

Poland



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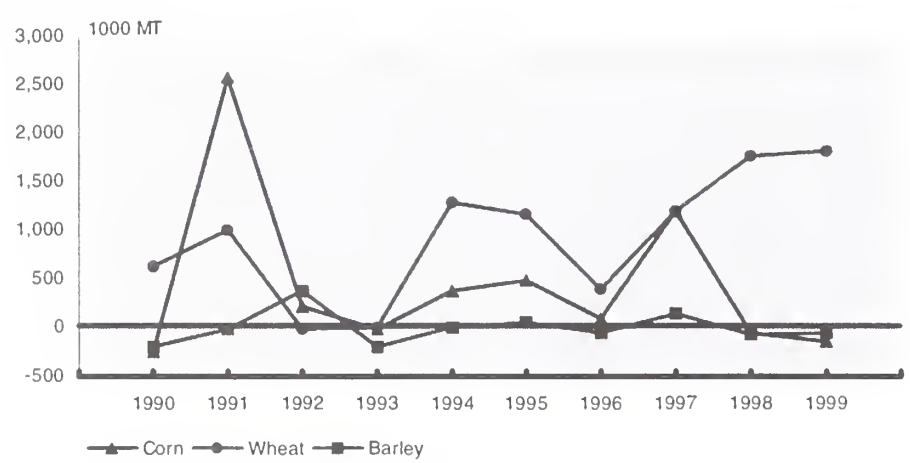
Net Grain Exports

Hungary



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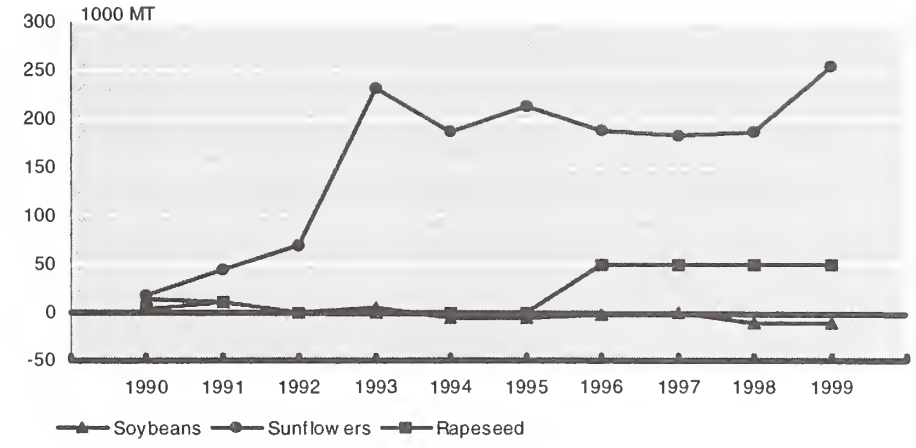
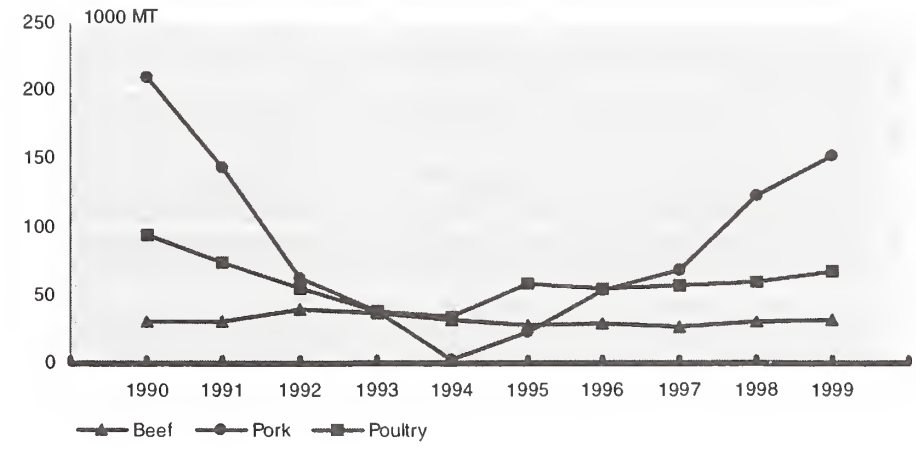
Net Oilseed Exports

Hungary



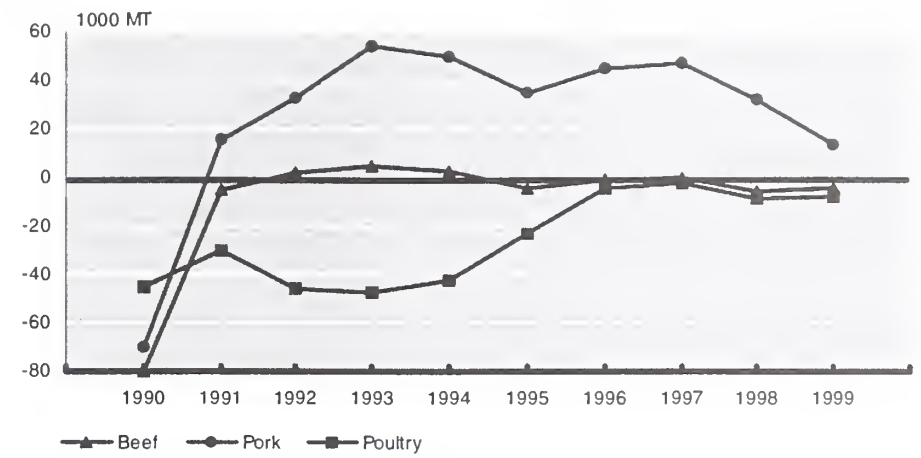
Net Meat Exports

Hungary



Net Meat Exports

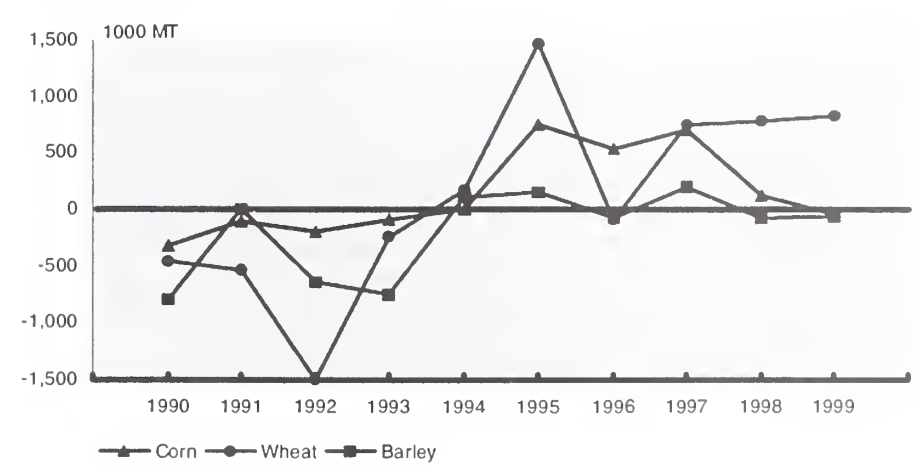
Romania



13

Net Grain Exports

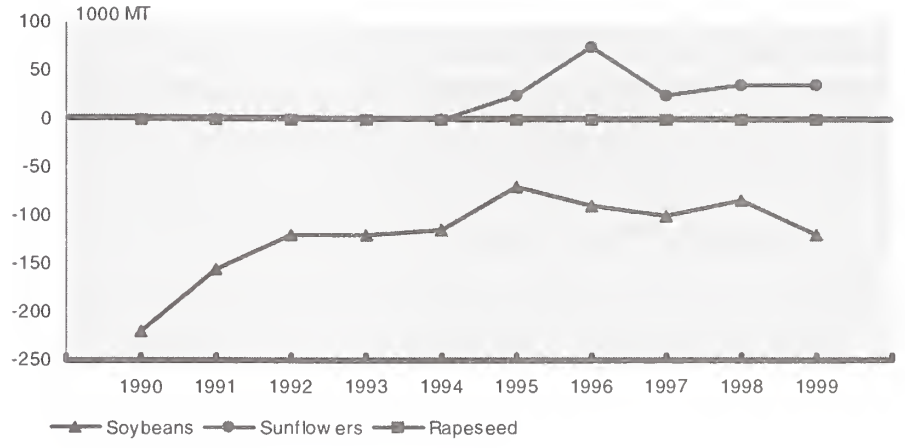
Romania



14

Net Oilseed Exports

Romania



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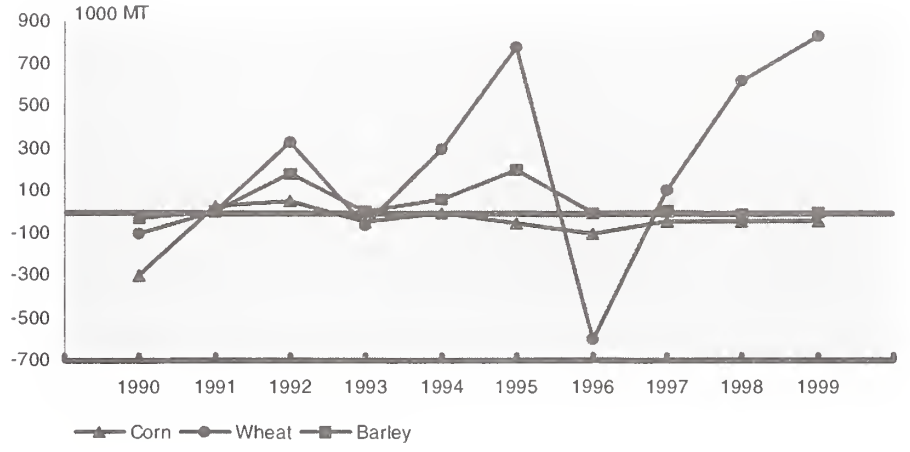
Bulgaria



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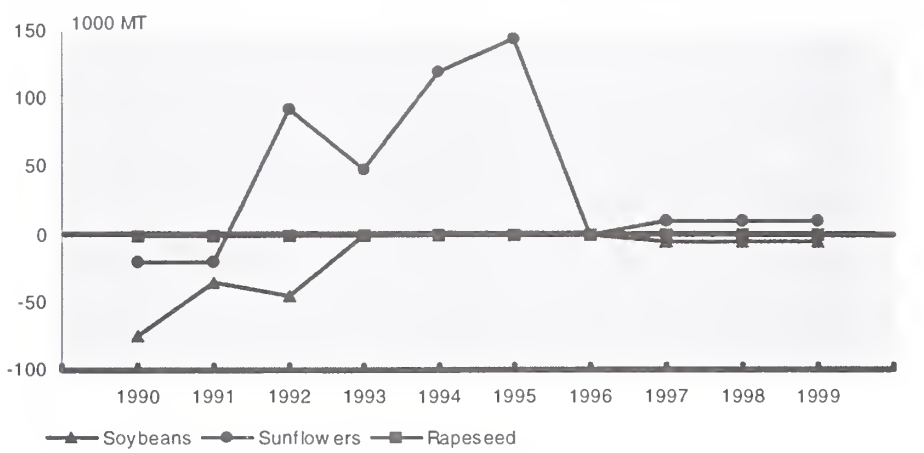
Net Oilseed Exports

Bulgaria



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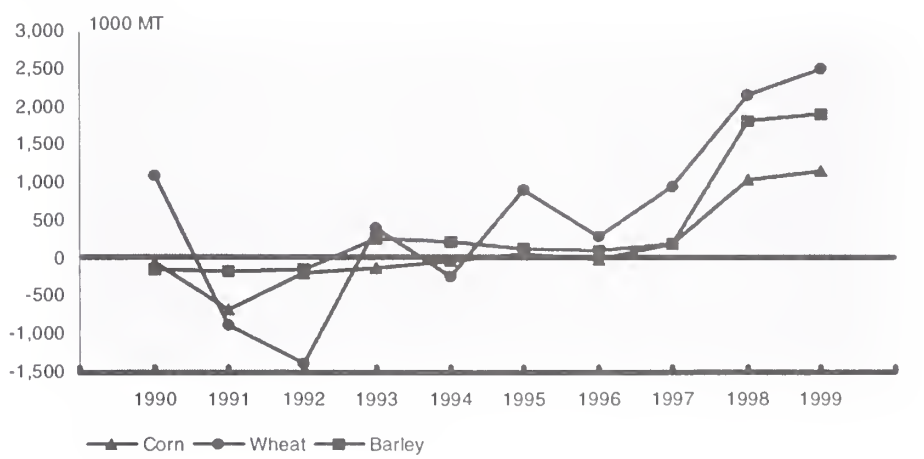
Net Grain Exports

Ukraine



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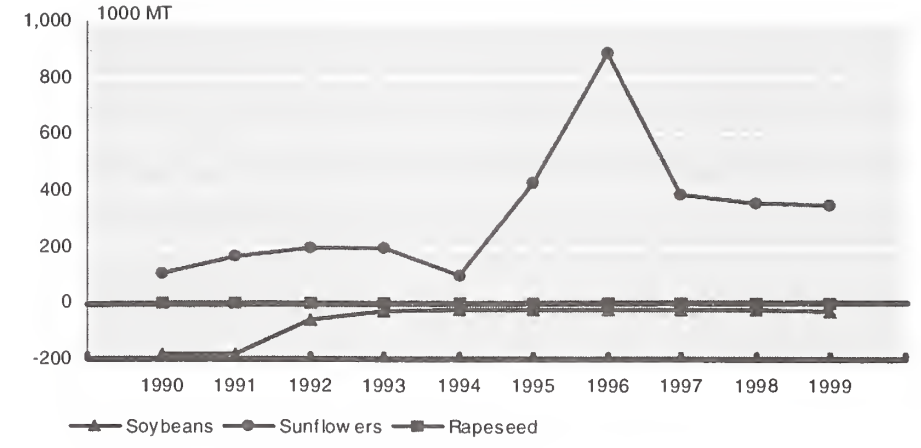
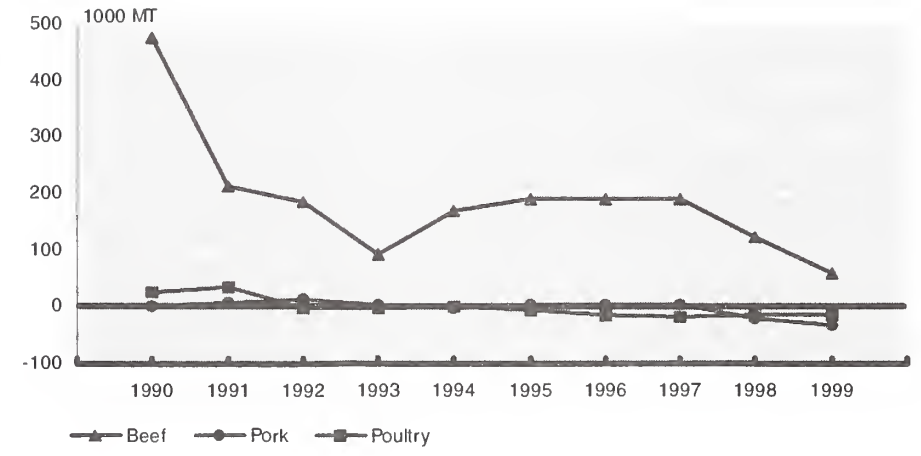
Net Oilseed Exports

Ukraine



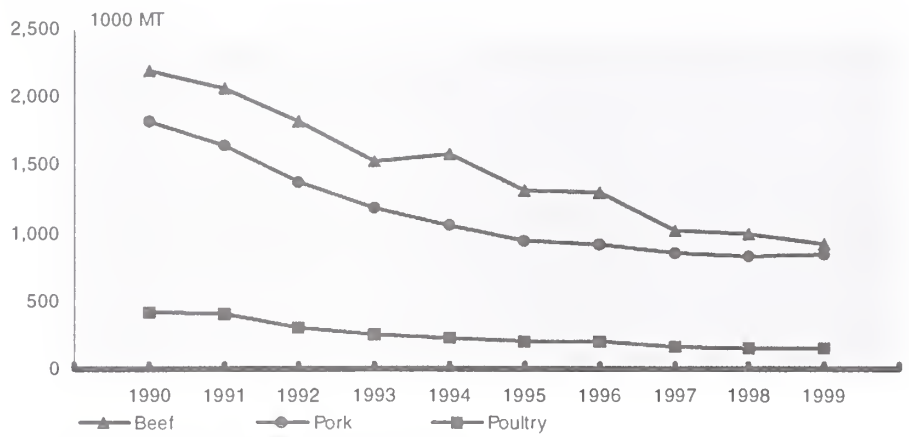
Net Meat Exports

Ukraine



Meat Production

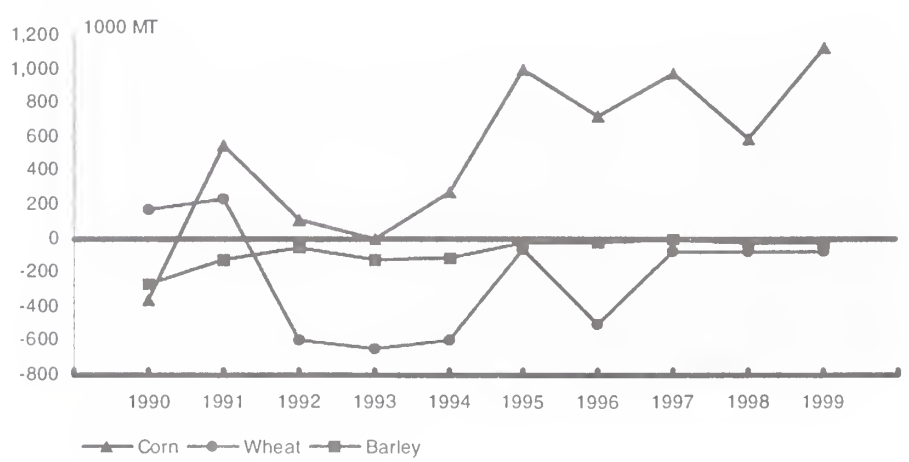
Region 3*



* Region 3 includes Estonia, Latvia, and the Ukraine.

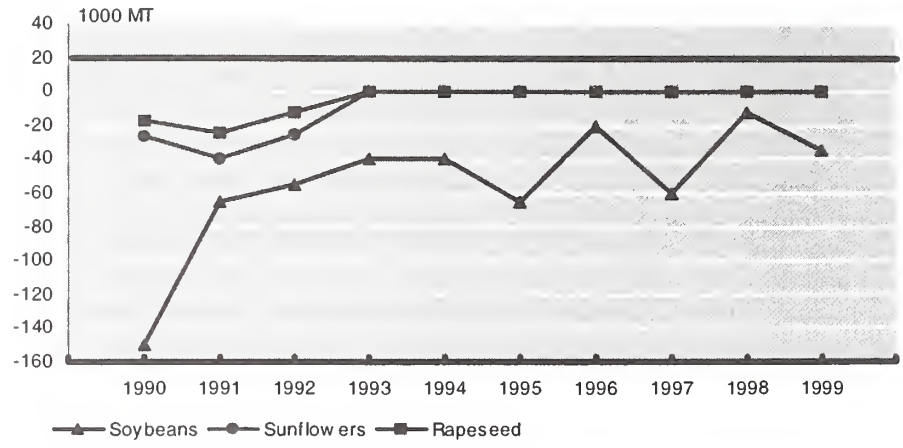
Net Grain Exports

Yugoslavia



Net Oilseed Exports

Yugoslavia



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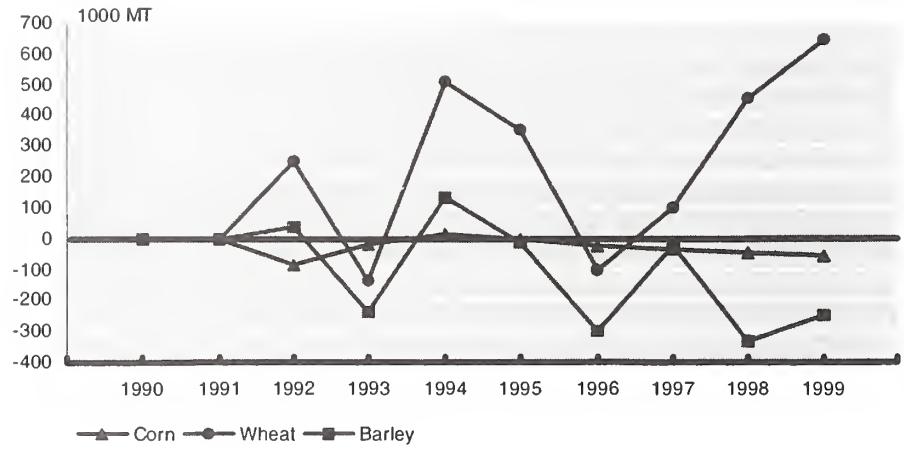
Net Grain Exports

Czech Republic



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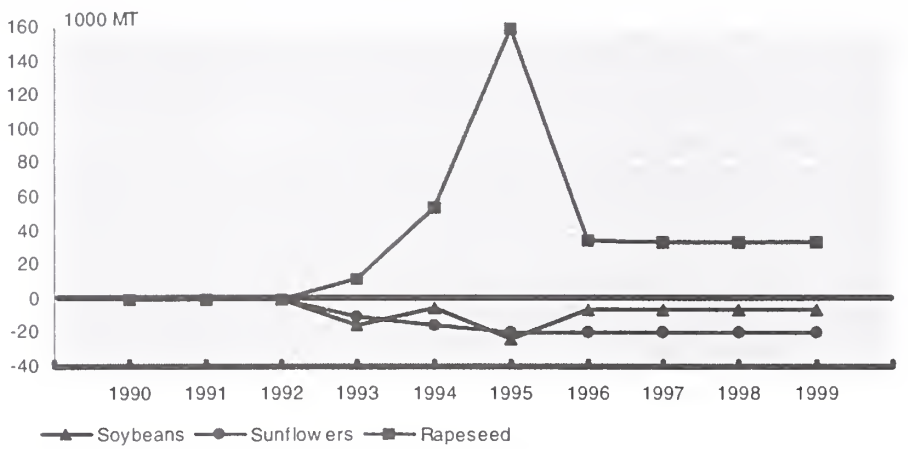
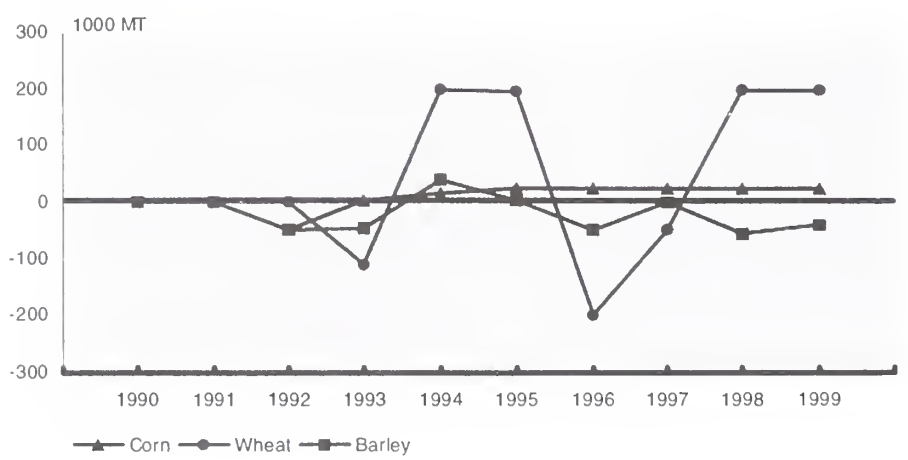
Net Oilseed Exports

Czech Republic



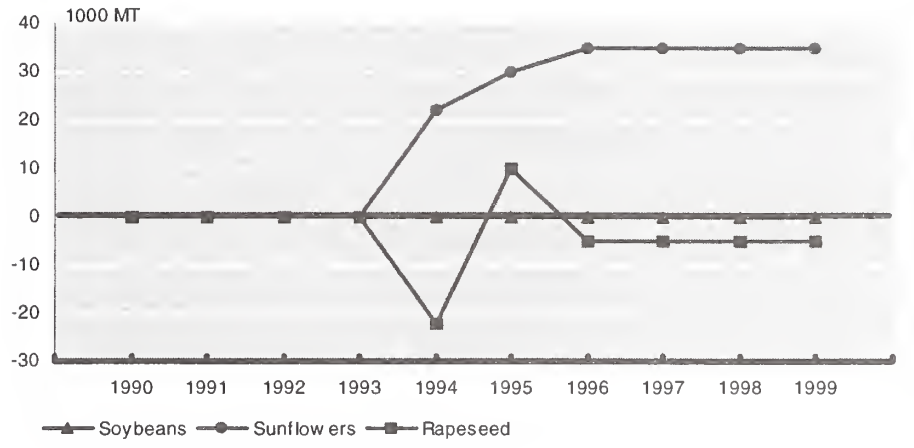
Net Grain Exports

Slovakia



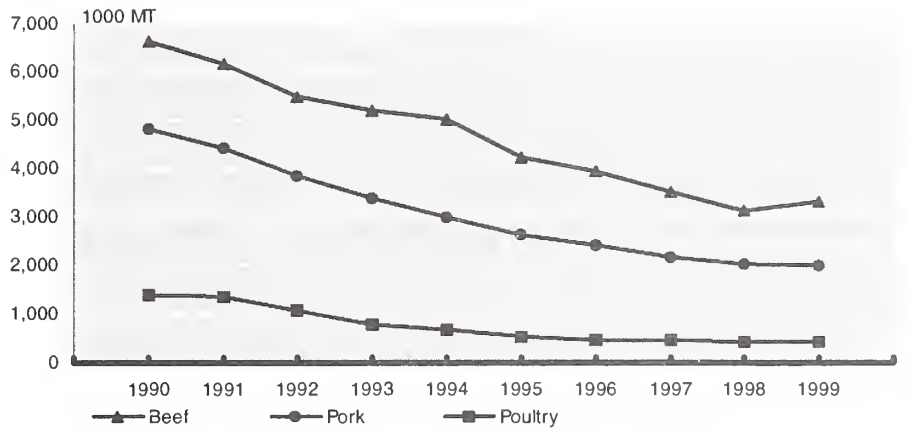
Net Oilseed Exports

Slovakia



Meat Production

Region 4*



* Region 4 includes Albania, Russia, and the other FSU countries not included in Region 3.

US TOMATOES IN JAPAN: EVOLUTION OF A SUCCESS STORY

Edward Beckman
President
California Tomato Commission

In 1989, a member of the California fresh tomato industry suggested that Japan could be a profitable market for our growers and shippers. In 1997, the first shipments of U.S. fresh tomatoes arrived in Japan. The eight years between the idea first being raised, to the arrival of the first imports, is a study of cooperation, frustration, and a struggle to keep industry focused on the challenges of developing an export market some 7500 miles away.

Since 1951, Japan prohibited the entry of fresh tomatoes because of the disease tobacco blue mold. Japan's position was, although the chance of tomatoes being infested with the disease is exceedingly low, there is no clear authoritative reference that the fungus does not transmit to fruit. Therein lies the problem: A lack of conclusive evidence that would address the concerns of the Japanese government and Japanese tomato and tobacco growers.

Prior to first contacting USDA-APHIS, the Commission enlisted the support of pathologists within the University of California system, and through an exhaustive literature search, found no evidence of tobacco blue mold ever being found on tomatoes; in fact, the only occurrence in California, was in 1885 on wild tobacco. There was significant doubt among the U.C. researchers that the fungus found in San Diego County was actually the "blue mold" in question.

Concurrently, the Commission undertook a market study of Japan, to determine the potential market share for our product. The study, conducted by Harvard Business School, concluded that the market for US tomatoes was the emerging fast food industry.

Looking back, I believe the Harvard and University of California studies were essential to lending credibility to our initial discussion with the USDA. From these initial discussions, we sought a partnership with USDA APHIS and ARS that would bring about a united effort to open Japan to US Tomatoes. It was a partnership that would require a financial investment on our part, and the resources of USDA over an extended period. In short, a relationship between private industry and the Federal government with a common goal: To open Japan's food service market to US tomatoes thus improving the financial position of the US fresh tomato industry.

In 1991, the Commission formally requested through APHIS that ARS undertake research that would address the concerns of the Japanese. The two-year study would cost $130,000 and

would be funded in part by the Commission. This study would seek to clear ten tomato varieties for export to Japan.

The proposed research protocol did not set well with California growers. First, we knew from our own research that tobacco blue mold does not infect tomatoes, and that tobacco blue mold is not found in California. Second, to limit the study to but a few specific varieties would limit our opportunities for success once the market is open, as varieties change every few years. It was possible that if the market did not open quickly, only a few of the listed varieties would still be in production. There were additional concerns: What of adding additional varieties, would this require another $130,000 investment? And, because of the historical lengthy discussion on phytosanitary issues between the United States and Japan on other fresh fruits, apples for example, many industry members thought the research would never satisfy the Japanese. Only by reinforcing to industry the market potential, and the high level of support we had witnessed from the USDA, was the Commission convinced to go forward with the initial research investment.

The research was completed in 1994, with the results being summarized and presented to the Japanese in the following year. The results being: Tomatoes are not a host of tobacco blue mold.

However, the lifting of the phytosanitary barrier by Japan did not follow quickly. Two years of discussion followed, characterized by frustration and false hopes. Industry was loosing faith. At the same time, the relationship between industry and the USDA, both APHIS and FAS was on very solid footing. There were frequent discussions on the status of talks, the need for additional information to be gathered and presented to MAFF, and importantly, extensive strategy on the issue of "what after the market opens."

In April 1997, the 46-year-old quarantine on US tomatoes to Japan fell.

Once the phyosanitary barrier was lifted, but prior to the first shipments, the Commission worked closely with APHIS on issues related to pesticide use. The Commission has maintained a database on pesticide use, which proved essential to answering the questions of Japan's Health and Welfare Ministry. In addition, we provided residue analysis on 75 million pounds of fruit, again, to reassure the Japanese as to fruit safety, and to minimize the inspection process upon arrival.

And now, as has been said...the rest of the story.

Again, prior to the opening of the Japanese market to US tomatoes, the Commission had conducted extensive meetings with the Japanese trade; our goal was to target US tomatoes to food service, thereby eliminating the speculation buy, where trading companies use volume to secure market share, regardless of demand. Nearly all of the US tomatoes cleared for export

are not suited for the Japanese consumer, only to food service, where the tomatoes are sliced or diced, and speculative buys could undo much of the groundwork done by the Commission and the Embassy in Tokyo.

We were successful, as most initial shipments were of test volume, several thousand pounds, not thousands of cartons brought into Japan on speculation. From these test shipments, many of our concerns, regarding the trade perception of our product, were realized.

By far, the most pressing issue from the Japanese trade was: What does tobacco blue mold look like? What if a US tomato has it? While both governments recognized that tobacco blue mold was a non-issue, the trade believed it was a scientifically sound issue, worthy of their concern.

The first commercial use of US tomatoes came about four months after the market opened. The product launch in Japan was by Wendy's, the US hamburger chain with 70 outlets in Tokyo. Their reasoning for purchasing US tomatoes was cost. Their tomato costs declined 40% with US tomatoes, just as the Harvard study predicted. In the first season, California exported 55,000 cartons of fresh tomatoes to Japan, with a FOB value of 425 thousand dollars. Now, six months later, the number of outlets featuring US tomatoes has nearly grown tenfold. By May, over 3,000 outlets of nearly a dozen fast food chains will use US tomatoes. At a box and half per outlet per day that amounts to 1.6 million cartons annually, or about 16 million dollars in FOB sales.

But...the continued growth of US tomatoes in Japan is clearly linked to the resolution of phytosanitary issues.

For example, the first load of US tomatoes from Florida in November was lost, unable to clear customs because of a lack of documentation regarding Caribbean fruit fly. Today, only tomatoes picked and shipped green can be exported from Florida to Japan, even though tomatoes are a poor host to the fly. The alternative, fumigation with methyl bromide is not acceptable, as fumigation will destroy the tomato. An alternative, the 28-day holding period at 32 degrees used in the Florida citrus industry, is also not acceptable, in terms of holding time and temperature, as it would destroy the tomato.

Restricting US exports to Japan to green tomatoes is a threat to our continued market growth. In October and November, a California vine ripe tomato shipper sent 10,000 cartons of ripe tomatoes for sale in Japan through Department stores. Importers say, without twelve-month availability, the growth potential for vine ripe tomatoes in Japan is questionable.

The greatest concern of the Commission, and of the Florida Tomato Committee, our partner in marketing in Japan, is the continued limitation on what varieties may be exported to Japan. As mentioned, the original list of varieties was developed in the early 1990's. Today, of the 26

varieties cleared for export, only four are grown in California. Today, we have tomatoes of much higher quality that are well suited for the Japanese market, and those tomatoes remain in the United States. Further, from additional market research, we estimate a significant market for roma style, plum tomatoes in Japan. For now, because of continued restrictions on the basis of the tobacco blue mold issue, those tomatoes cannot be exported to Japan. And, Japanese growers are introducing new tomatoes, better suited for the local fast food market. If we cannot also introduce new tomatoes, the true market potential for US growers in Japan will never be realized.

Which takes us back to the original conflict within industry on phytosanitary issues: We believe that tobacco blue mold is not an issue. USDA-ARS research confirms our own studies. If we are to grow the Japanese market for US tomatoes, there is a need to clear more tomato varieties for export. Once again, the tomato industry is faced with difficult questions. Will this next effort to lift the remaining varietal restrictions require another eight years and the expenditure of hundreds of thousands of dollars and countless hours of manpower? Unlike the climate that surrounded the decision first made in 1991 by the Commission, there will likely be little debate on the potential of the Japanese market for our growers.

At the Commission, we believe our partnership with USDA, first established in 1990, continues today. Much of our success in Japan today can be linked to the promotional support made possible through our participation in the Market Access Program. Our partnership must also continue, through APHIS, so to recognize that until the limitations on US tomato exports are lifted, that phytosanitary barriers remain in place, limiting the growth of US tomatoes in the Japanese market.

The responsibility to open a foreign market to a US commodity must be regarded as a partnership. And, I would suggest that much of the responsibility reside with the grower organization, such as the Commission, researching not only the market, but also the phytosanitary issues affecting your commodity. Second, there is the responsibility once the market is open to prevent small problems from becoming major issues.

Today, our in-country representatives use digital cameras to monitor arrivals and upload images to the Internet our tomatoes in Japan. Today, we can view fruit quality just minutes after we record the images. The following case illustrates the importance of such technology: A test shipment to a major fast food chain was being evaluated in Osaka. We were informed that an insect was found in the shipment. The importer demanded of the exporter an explanation and questioned whether they could ever use US tomatoes because of insect contamination in the field. By uploading the image, it was determined the pest was the result of on-site cross contamination, not the fault of the US exporter.

In summary, the Japan project was the Commission's first entry into the issue of phytosanitary barriers. Over the last eight or nine years, we've come to recognize several key issues: The

fresh fruit and vegetable industry is fast becoming a global marketplace. With this new opportunity for growth and profit, comes a much higher degree of risk for the grower and shipper. Because of that risk, it is essential that industry have a full understanding of phytosanitary issues from governmental and cultural perspectives; and to use that understanding to establish a partnership with the USDA based upon science and marketing research. Assume a pro-active role on issues that will influence your success. Finally, look to the future. Opening a market can easily take years. While an opportunity may exist today, it's how you will market your crop five, perhaps ten years from today, that will determine whether the investment of the organization, and the support directed to the project by USDA, provides a return on a substantial up-front investment.

Agricultural Outlook Forum For Release: Monday, February 23, 1998

Biotechnology Issues for Crop Producers

by

Steve Wentworth
Vice-President
Foundation EARTH

I come from a long line of Macon county Illinois farmers who have adopted emerging technologies over the last 130 years to improve their farms. In the 1870's my great-great grandfathers saw how John Deere's steel moldboard plow could enhance the productivity of sticky Illinois prairie soils. They soon realized Cyrus McCormick's reaper would allow them to harvest more grain in a day. In 1870, 53% of the US population were farmers. By the turn of the century, my great grandfather used the power of steam engine to run a threshing machine. At the turn of century, 37.5% of all US workers were farmers; by 1920 that percentage had dropped to 27%. When A.E. Staley Company of Decatur Illinois first started processing soybeans in October 1922 it profoundly changed my grandfathers' crop rotation and all of US agriculture. Soybeans were no longer a hay crop or a nitrogen source to be plowed under, but a cash crop. With the use of hybrid seed corn starting in the 1930s, Macon county farmers saw a tremendous increase in yield. During that the same decade gas powered tractors were used for the first time to till the soil.

In 1950, the year I was born, and two years after my father started farming, 11.6% of the working population of this country were farmers. During my Dad's farming career, he saw our farm's productivity zoom through the use of soil testing, greater use of commercial fertilizers, herbicides to control yield robbing weeds, insecticides to prevent disastrous insect infestations, advances in electronics that allowed more accurate planting, spraying and harvesting operations. By 1970, only 3% of the US work force were farmers.

Since 1974, the year I started farming, we have gone from moldboard plowing to soil conserving minimum tillage and No-till. Back then our big tractor was a state of the art John Deere 4430 with 125 horsepower, now our large tractor is a Case 9370 with 365 horsepower. The John Deere 4400 combine we used in the early 70's would harvest 4,000 bushels of corn in a big day. With our current John Deere 9600 it is not uncommon to shell 20,000 to 22,000 bushels of corn a day. The machine that is used the most on our farm is the computer. We are currently on our fifth computer. Unlike combines that do wear out, computers are obsolete minutes after you walk out of the store. In the past it took 8 to 10 pounds per acre of herbicides to get satisfactory weed control. Now, as little as 4 ounces per acre of the new generation herbicides will give a farmer a weed free field. When I started farming I would spread the same analysis of fertilizer across an entire field.

For the last few years I have been using variable rate fertilization technology coupled with Global

Positioning to apply phosphate and potash in the most economically optimum ration for that exact location in the field. My combine is now equipped with a yield monitor and a GPS unit so I know what every square meter of a field yields. Now the challenge is to interpret the data, and determine what causes the differences between the lowest yielding areas and the highest areas. Precision farming combined with the advances in biotechnology promises to further speed the incredible rate of change in production agriculture.

Advances in technology have allowed me and the rest of American agriculture to become more productive and environmentally sustainable at the same time. Currently, less than 1.5% of working Americans are farmers. I believe biotechnology holds a promise for even more improvement, but should not be viewed as some kind of a silver bullet solving all of agriculture's problems. Each of technological advances I have described over the last 130 years have created both new opportunities and management challenges for the American grain farmer. None of these advances were problem free or easy. Likewise, the use of transgenic crops is extremely promising, but it would be naive for anyone to believe there are not tough issues to be dealt with.

Roundup Ready soybeans have been probably the most visible of the early transgenic crops. 1998 will be the third year I have grown Roundup Ready soybeans. The rapid acceptance of this technology has been nothing short of astonishing. Representatives of some of the leading seed companies tell me the market share of Roundup Ready has grown from 0 in 1995 to over 60% for the 98 growing season. They expect in 1999 over 75% of all soybeans they sell in this country to be Roundup Ready.

If we look at the economics involved, it is easy to understand why this new technology has gained such a rapid acceptance among farmers. On my conventional soybeans, before planting I apply a pre-emerge grass herbicide followed in June by postemerge broadleaf chemical at a cost of $38 per acre for the chemicals plus two applications at $4.50 each per acre for total expense of $47 per acre. With Roundup Ready soybeans I spend $13 per acre for the Roundup and $4.50 per acre for a single application . Monsanto collects a technology fee of $5.00 per 50 pounds of Roundup Ready seed used. This amounts to $5.00 to $7.50 per acre depending on seed size and planting rates. Overall, I am saving $22 to $24.50 per acre, which on our farm's 1300 acres of soybeans is a $28,000 to $31,000 cost reduction. Roundup kills a wider spectrum of weeds while at the same time being gentler on the growing beans. It is obvious why Roundup Ready soybeans have gone from nothing to over 60% market share in 4 years.

There are number of management issues about Roundup Ready soybeans that farmers need to address. If any conventional beans are planted in a Roundup Ready field or sprayer operator treats the wrong field all of those soybeans will die. If the winds are too strong or out of the wrong direction a neighbor's corn ,or worse, his wife's tomatoes will be destroyed. This year, for the first time, Dekalb is offering Roundup Ready corn. If a farmer plants any of these fields to Roundup Ready soybeans in 1999, any volunteer corn growing in his soybean field would also be resistant to Roundup. If farmers kept using Roundup on both their corn and soybeans for years, in theory, it would be possible for a weed to develop a resistance to the chemical. The Monsanto people say the chances of that happening are almost nil.

There has been much debate in farm circles this fall and winter if Roundup Ready soybeans yield as well as conventional beans. From the data I have seen and my own experiences, I am convinced that the best Roundup Ready soybeans will yield with any conventional variety. Seed companies are working feverishly to get the Roundup Ready characteristic into their best genetic package.

For years farmers planted soybeans saved from the previous crop for seed. This practice is called using "bin run seed". Over the last 25 years farmers have increasingly purchased new seed every spring to insure themselves of the best genetics and the highest quality. Today, when a farmer buys a bag of Roundup Ready soybean seed he pays the $5 technology fee that goes to Monsanto and he signs an contract that he will not keep any production back for seed. If he is caught in violation of this agreement he can be fined over $1,000 per acre. Most producers understand that the tech fee allows Monsanto to recover their previous research costs, give a return to the stockholders, and provide research dollars for the development of future transgenic crops. But, it is a new and difficult mind set for a few farmers that those soybeans he just harvested cannot be kept for seed.

The European corn borer does more economic damage than any other insect to corn, with losses and control costs exceeding $1 billion annually. The decision on whether or not to grow Bt corn is not as clear cut as it is with Roundup Ready soybeans. A central Illinois farmer knows with a great deal of certainty what the weed pressure will be in his soybean fields, but the reliability of predicting the level of European corn borer infestation before planting is not very consistent. The severity of the previous winter; a farmer's and his neighbor's tillage; the timing, velocity, and direction of summer and fall winds; and number and strength of summer thunderstorms all impact corn borer survival. Farmers in the Western Corn Belt usually have greater corn borer economic losses and on a more regular basis. Integrated pest management (IPM) offers some defense against European corn borer, but is not practiced to any great degree. IPM requires skillful scouting multiple times in extremely uncomfortable conditions and is very time consuming. Even if economic levels of corn borer are detected, the treatment insecticides are expensive and not always very effective. There also can be health and environmental concerns. Beneficial insects will be reduced.

Bt corn basically offers a corn farmer an insurance policy against moderate to severe infestations of European corn borer. Bt, Bacillus thuringiensis, is a naturally-occurring soilborne bacterium. Bt produces crystal-like proteins that kill certain insects when ingested. Plant geneticists create Bt corn by inserting selected exotic DNA into the corn plant's own DNA. This is called an "event". The EPA has registered four unique events for commercial use: 176 (Novartis Seeds and Mycogen Seeds), BT11 (Northrup King/Novartis Seeds), MON810 (Monsanto) and DBT418 (DEKALB Genetics Corp.). Event 176 hybrids produce Bt protein only in green tissues and pollen, whereas BT11and MON810 produce Bt protein throughout the plant. While all the events do control corn borer larvae, but to different degrees.

Bt is a defensive characteristic. Putting Bt into a corn with mediocre genetics isn't going to make that variety great. Giving me the latest set of Calloway Big Berthas won't make me a better

golfer than Tiger Woods with 1950 vintage irons. Also some corn varieties, such as Pioneer 3489 or Garst 8481IT, can tolerate more corn borer injury than others. As a farmer, I need to decide if the extra $14 to $15 per acre I will spend for Bt corn is justified. This spring, I will be planting my first Bt corn on about 5% of my acres. The yield monitor on my combine will show me how these Bt corns perform against my favorite non-Bt hybrids in 1998. But that will be no guarantee of Bt being advantageous in 1999. My best guess is that as more companies start putting Bt into their highest yielding genetics the market share of Bt corn will grow dramatically.

The concern of farmers, seed companies, universities, and others is that European corn borer will develop resistance to Bt if growers start planting whole farms to corn with this technology. To prevent this farmers are being advised to plant Bt only on acres where there is risk of severe infestations. Also, corn farmers are instructed not to plant any single field to more than 75% of Bt varieties. Planting a 25% refuge of non-Bt-corn will allow susceptible European corn borers to mate with potentially Bt-resistant corn borers. If not managed properly, Bt-corn will be a short-lived benefit to corn farmers. Future transgenic crops, like rootworm resistant corn, will not be released unless farmers show good stewardship of biotechnology products such as Bt-corn.

Farmers are intently following the rapid structural changes of the companies selling them inputs. They are asking themselves, what does it mean to us for Monsanto to purchase Asgrow and Holden seed companies or for DuPont to buy 20% of Pioneer? Is it good or bad? Only time will tell. What is obvious, is that biotechnology is the primary catalyst. The first generation of biotech traits have been input related. What is truly exciting for me as a farmer is the prospect of biotechnology increasing the value of my corn and soybeans. Maybe because of biotechnology I will be growing a different commodity. Crops will be genetically engineered to replace materials that now come from petroleum such as chemicals, fuel, and plastics. Transgenic crops have great potential in animal health, neutraceuticals, and pharmaceuticals. For generations American farmers have adopted to changing technologies. The rate of change facing farmers today is truly incredible. Biotechnology is another tool for farmers to utilize to bring abundance to America.

Agricultural Outlook Forum For Release: Monday, February 23, 1998

GROWING WITH CONSERVATION

David Stawick
President, National Conservation Buffer Council

The topic of my discussion, "growing with conservation," might once have been seen by some within agriculture as an oxymoron. As recently as the mid-1980s such an assessment was somewhat apt. In essence, this subject leads one to raise a question: "C*an* we grow with conservation?" In my opinion, this may be the most important question our industry will face in the new millennium.

Demand, environment to pose challenges

That U.S. agriculture will endeavor to be a high-intensity, high-output industry in the future is a given. Our nation's farmers and ranchers face increasing demand for the food, fiber and fuel that are derived from the raw agricultural products they produce. We are all aware of the projections for growth both in worldwide population and in per capita purchasing power. Striving to meet the demand from this population boom will be an economic imperative for American agriculture producers. Some in our nation will doubtless see it as a moral imperative as well.

In fact, the U.S. is very well positioned to accept this challenge. Our climate, soils, infrastructure and technology are unparalleled. But aggressive use of land resources and other inputs will be necessary for farmers and ranchers to maximize production.

Because of the stimulus to achieve more and more output, environmental pressures on American farmers and ranchers will likely continue to be significant. Today's list of specific policy challenges is daunting. Agriculture is, indeed, "in the crosshairs" regarding many environmental issues, with water quality of foremost concern. Development of "total maximum daily load" (TMDL) allocations for pollutants and the pressures of nutrient-induced hypoxia in the Gulf of Mexico are among the most conspicuous policy issues. Within the rubric of air quality, agriculture also faces major ramifications from the recent debate over global climate change and the new air quality rules for ozone and particulate matter.

And while agriculture has traditionally had substantial support from Congress, that support may be tempered in the future or may, in some cases, be irrelevant. For example, mixed constituencies will cause Members of Congress to listen when city dwellers complain about higher bills for the removal of agricultural contaminants from drinking water. And some issues, like TMDLs, are impelled by court action.

Note: Opinions expressed in this paper are not necessarily those of the National Conservation Buffer Council or its sponsoring organizations.

There will be environmental benefits to agricultural production in the U.S., to be sure. Ethanol produced from corn and other cellulosic material burns cleaner than fossil fuels and may, at some point, become economically competitive with gasoline. Growing plant material can act as a repository for atmospheric carbon. And to the extent that production in our country replaces the breaking of new, fragile lands such as rain forests in South America, it will preserve valuable carbon sinks. But in the net, the pressures on the environment from agriculture will still outweigh its direct benefits.

So we return to the question I posed at the outset about whether we can "grow with conservation" (perhaps better put, "can we increase production while vigorously protecting resources?"). The answer is simple -- we have no choice. We must do so.

Policy implications of the dual challenge

As American society strives to meet this dual challenge, what are the policy implications for the agricultural sector? One thing that seems inescapable to me is that the days that farmers and ranchers, and the organizations that represent them, can simply "hunker down" and ride out environmental policy challenges are over.

I would argue that, in fact, agriculture is no longer simply trying to lie low. Several commodity groups have developed stewardship programs or best management practice documents. The National Pork Producers Council participated in a provocative dialogue on environmental issues. And state-level organizations are getting increasingly involved in environmental matters. Consider a recent discussion I had with a friend who runs a state commodity association, in which he said he was considering hiring a full-time environmental staff person who would, among other things, solicit and oversee projects funded under section 319 of the Clean Water Act.

Of course, I feel that the National Conservation Buffer Council is also a cutting-edge example of the agriculture industry's increasing sensitivity to environmental issues. The seven agribusiness firms that fund the Council certainly have an enlightened self-interest in seeing that farmers and ranchers are not shackled by environmental regulations in the years to come. But they also recognize that it is only through the widespread adoption of conservation practices such as buffers and attendant improvements in water quality that burdensome new regulations will be avoided.

1996 farm bill provides new tools

Just as agriculture has become more attuned to environmental issues, our nation's farm policy has taken a major turn for the better. The 1996 farm bill eliminated annual acreage setasides and the base acreage concept, allowing farmers the flexibility to make economically and environmentally rational cropping decisions. The conservation title of the bill established the new Environmental Quality Incentives Program, which provides $200 million annually to promote conservation practices. EQIP signals a change in emphasis away from large-scale land

idling as our main conservation practice. Instead, EQIP focuses on wise environmental management compatible with the level of production that the demographic trends I mentioned earlier will dictate.

The Clinton Administration's operation of the Conservation Reserve Program has also been far-sighted since Congress reauthorized the program in the 1996 farm bill. The average environmental benefits of contracts let in the last two enrollment periods has jumped substantially. Particularly important to us at the National Conservation Buffer Council has been the continuous CRP signup for valuable buffer practices. The continuous signup is the most financially attractive incentive that will help us achieve Secretary Glickman's goal of the establishment of two million miles of buffers by 2002. I am pleased to note that more than half a million acres of buffers had been created through the CRP as of last December, and the Secretary has pledged to hold back 5.5 million acres for the continuous signup.

The fact is that these policies are allowing us to "grow with conservation" today and they leave our nation well positioned to continue to do so in the near future.

At this juncture, one is tempted to ponder what policies might one day be adopted to continue this environmental trend in the years to come. Bill Northey, who is a member of the Commission on 21st Century Production Agriculture, will presumably tackle that question in his presentation. But the question is so interesting I cannot pass up taking a small swing at it myself.

Stipulations for future debate

Let me begin by suggesting a couple of framework stipulations that, given my experience in the private sector and having worked for Congress, must be made by all participants in the debate if rational policy choices are to be arrived at in the future.

First, with respect to row-crop production and associated nonpoint source water pollution, there must be an appreciation by policy makers of the peculiarities of agriculture. These include the impacts of weather events, the difficulty of individual producers in a static situation to pass along the costs of environmental compliance, and the economic impetus for all farmers to maximize profit. These points argue for a management framework different than that for point sources, preferably one with economic incentives like those in the farm bill and in the President's fiscal 1999 budget.

At the same time, there is compelling evidence that nonpoint source pollution is our nation's major remaining water quality challenge and that agriculture is, collectively, among the most significant of the nonpoint sources. While we may be quibble at the margins about the magnitude of culpability, the industry must appreciate that there is a factual basis for concern about our impact on water quality.

Second, regarding confined livestock operations, there must be a clear differentiation drawn between the potential these facilities have to pollute water resources and the impacts these large

operations may have on the economic structure of the livestock industry. Too often, in my opinion, individuals and groups who are essentially against large farming operations for economic or sociological or political reasons are using environmental concerns as a stalking horse.

On the other hand, livestock operators must understand that a "we were here first" attitude will not pass muster with an increasingly urban public. Also, they must face up to the fact that large operations can have very serious detrimental environmental impacts in emergency situations. I like to say that animal agriculture is going through a growth phase somewhat analogous to the time of mechanization of row crop production. But recall that with the benefits of mechanization came new responsibilities, such as adhering to traffic laws while moving tractors and combines on rural highways. Animal agriculture must understand that its metamorphosis carries new responsibilities, also.

What farm policies for the future?

Much of the new policy that will affect agriculture will not be written in the agriculture committees of Congress, but by the other panels that have broader environmental jurisdiction. However, the agriculture committees will continue to have new opportunities to help farmers and ranchers meet their environmental responsibilities. While the National Conservation Buffer Council has no formal positions on future farm policy, I have a few personal ideas on the form the future debate may take.

There is already speculation as to what, if anything, will succeed the "market transition" or "Freedom to Farm" contract payments as direct support payments to agricultural producers. While it is true that the contract payments decline over the seven-year life of the 1996 farm bill, the Congressional Budget Office will likely rule that some baseline expenditure level will continue to be available for a successor program. Let me suggest first that environmental linkages with any direct payments to producers that may be forthcoming will be seen by many as appropriate. Environmental groups that pushed for the wetland and highly erodible land conservation provisions of the 1985 farm bill will likely insist the provisions remain in place, although their case may be weakened somewhat by the lower level of individual payments and the existence of the wetland conservation program authorized by section 404 of the Clean Water Act.

One subject of speculation is the possibility that the farm program baseline may be used for an enhanced form of crop insurance or some other type of risk management protection in the next farm bill. If this is the case, Congress may want to consider environmental factors among those types of risk that could be addressed. For example, payments to producers could be made in the form of vouchers redeemable for crop or revenue insurance or for some type of enhanced environmental technical assistance. A secondary market could allow producers in low-risk areas to sell their vouchers to those in higher-risk regions or areas of greater environmental sensitivity.

A less cumbersome option could be a simple shift of some funds from the farm program payment account to the EQIP program. This would have the advantage of targeting EQIP priority areas, although the payments would not be "entitlements" in the form of the current market transition payments.

Conclusion

U.S. agricultural policy has made tremendous moves in recent years toward allowing greater production within a framework of greater environmental protection. Urban interests will likely push for a continuation of this trend and the agriculture industry will be wise to continue building on the environmental achievements of the past decade.

MANAGING GLOBAL CHANGE THROUGH SOIL CONSERVATION

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U.S. Agriculture

Agriculture is a major industry in the U.S.A. Farming contributes about 1% (>$63 billion annually) to the national GDP and directly employs about 1.2% of the U.S. labor force (>1.6 million people). Farming plus agriculture-related industries contribute 13.5% (about $1 trillion) to the national GDP and employ 17.3% (about 23 million people) of the U.S. labor force. The total land area of the U.S.A. is 7% of the world land area, but the cropland area is about 14% of the world's cropland area (Table 1). U.S. agriculture contributes 15% of cereals, 11% of wheat, 36% of corn, 22% of sorghum, 47% of soybeans, and 7% of peanut production in the world (Table 2). Cropland area in the U.S.A. is rapidly decreasing, due to conversion to other uses. The cropland area decreased from 188 million hectares (464 million acres) in 1987 to 158 million hectares (391 million acres) in 1993, a loss of 16% over the 6-year period (Table 3).

U.S. Agriculture and the Greenhouse Effect

Total U.S. emissions of greenhouse gases (GHGs) is estimated at 1666 million metric tons of carbon equivalent (MMTCE), of which agriculture contributes 80 MMTCE or 4.8% of the total (US-EPA, 1995). In comparison, DOE/EIA (1996) estimates total U.S. emissions of 1442 MMTCE, of which agriculture contributes 66 MMTCE or 4.6 of the total. Taking the average of both estimates, the mean emission of GHGs by agriculture is 73 MMTCE. Lal et al. (1998) estimated that agricultural emissions also should include an additional 15 MMTCE due to soil erosion and 27.9 MMTCE due to direct on-farm energy use and indirect fertilizer and pesticide production. Revised estimates by Lal et al. (1998) show that emissions of GHGs by U.S. agriculture contribute 116 MMTCE out of a total of 1597 MMTCE, or 7.3% of the total annual U.S. emissions (Table 4).

Sources Of Emissions Of GHGs From Agriculture

Principal sources of agricultural emissions of GHGs are: (i) mineralization of soil organic matter and emission of CO_2 due to plowing and other types of soil disturbance related to agricultural activities, (ii) CO_2 emission from soil erosion and erosion-induced soil degradation, (iii) natural levels of soil emissions of N_2O and NO_x and emissions from nitrogen fertilization, and (iv) CH_4 emissions from rice paddies, organic materials, and wetlands. Mineralization of soil organic matter due to plowing, accelerated soil erosion, and other soil degradative processes may have contributed a total or accumulative loss of 5000 MMTC from U.S. cropland (Lal et al., 1998).

Strategies Of C Sequestration in U.S. Cropland

Depending on the land use and soil/crop for sequestering C management systems, soil can be a source or a sink for atmospheric C. The principal strategy is to enhance and maintain high soil quality. The latter refers to soil productivity and its environmental regulatory capacity, and it strongly depends on soil organic matter content.

The soil is an ultimate storehouse of C, and increase in soil C content improves soil quality. Soil C exists in various forms ranging from highly labile (with a short turnover time) in living organisms (biomass carbon) to highly resistant humic substances with a very long turnover time. The highly resistant forms of C may be due to the complex nature of organic substances which are not easily decomposed by microorganisms or due to C entrapment within micro-aggregates, in the form of organomineral complexes, making it slowly accessible to organisms.

Soil degradation (e.g., erosion, salinization, compaction, contamination, pollution, acidification, soil fertility depletion) depletes soil organic matter content and accentuates emissions of GHGs. Soil degradation is exacerbated by excessive plowing, drainage of wetlands, poor water management, excessive and untimely vehicular traffic, and no-input or low-input techniques that lead to mining of soil nutrient and depletion of soil fertility.

In contrast, soil restorative measures can increase biomass production, increase soil organic C content, improve soil quality, and partially mitigate the greenhouse effect.

Potential Of U.S. Cropland For C Sequestration

Principal strategies to sequester C in soil are: (i) convert marginal lands to compatible land use systems, (ii) restore degraded soils, and (iii) adopt best management practices of BMPs (Table 5). Taking agriculturally marginal land out of production and adopting an ecologically compatible land use system can lead to an increase in the total biomass production and an increase in C content in soil.

Government-sponsored programs on land conversion include CRP, WRP and Conservation Buffers, and all help to improve soil quality and enhance C sequestration in soil. Restoration of degraded soils is important not only to C sequestration but improving the overall environment. Among severely degraded lands in the U.S. are those caused by soil erosion, excessive salt buildup in the root zone, drastic disturbance by mining and other urban activities, and soil contamination by industrial pollution.

There have been numerous advances in agricultural technologies for sustainable management of soil and water resources. Important among these are: (i) conservation tillage, (ii) management of crop residue and other organic materials, (iii) soil fertility enhancement through site-specific management and nutrient recycling techniques, (iv) elimination of summer fallow, (v) use of winter cover crops, and (vi) other techniques that improve crop/biomass yield (e.g., IPM). The carbon sequestration potential of these practices in U.S. cropland is 125.6 MMTC/yr (Lal et al., 1998).

In addition to sequestering C in soil, the idle crop land can also produce biofuels. Adoption of conservation tillage saves fuel consumption, and there are numerous options to reduce emissions of CH_4 and N_2O from agricultural sources. The data in Table 6 show that the total C sequestration and fossil fuel off-set potential of U.S. cropland is 154 MMTC/yr or 133% of the total emissions of GHGs by agricultural activities. Therefore, rather than being a source, U.S. agriculture can be a sink for atmospheric C through adoption of appropriate land uses and BMPs.

C Sequestration In Soil: A Win-Win Strategy

Adoption of appropriate land uses and BMPs is a win-win strategy. It leads to: (i) C sequestration in soil and help mitigation of the greenhouse effect, (ii) improvement in soil quality and agronomic productivity, and (iii) enhancement of overall environmental quality. The SOC is a highly valued commodity. In terms of agricultural productivity alone, some agronomists estimate its value at \$0.20/kg (0.9¢/lb). If so, annual sequestration of 125.6 MMTC is equivalent to \$25 billion or equivalent to 40% of the total annual agricultural production. In addition to increasing soil productivity, C sequestration in soil can lead to improvements in environment e.g., decreasing the risks of siltation of waterways and reservoirs, decreasing CO_2 concentration in the atmosphere, and reducing the cost of environmental cleanup. Some economists estimate that reduction in C emissions would require a carbon tax ranging from \$200 to \$350 per MT of C (OECD, 1994). Assuming an average tax of \$300 per MT, a total saving of 154 MMTC/yr is equivalent to \$46 billion/year. Therefore, total saving by C sequestration in soil and fossil-fuel off-set by proper land use and soil management is about \$71 billion/year or \$260 per capita per year.

Conclusion

Agriculture often has been blamed for environmental problems ranging from soil erosion and degradation to eutrophication of surface water and contamination of ground water, loss of biodiversity, and the greenhouse effect. Rather than being a problem, adoption of appropriate land use and BMPs is an important solution to numerous economic and environmental issues. Adoption of appropriate land use and BMPs on U.S. cropland is indeed a win-win situation.

It is in our national interest to encourage widespread adoption of proper agricultural practices for sustainable use of natural resources and improvement of our nation's environment. Adopted on a global scale, the C sequestration potential of restoration of degraded soils is about 3 Pg/yr. Although completely realizing this goal will be difficult, restoration of degraded soils should be an important global agenda.

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Table 1. Agricultural land area in the U.S.A. and the world (FAO, 1995).

Land use	World	USA	% of the world
	--------million hectares------		
Total area	13382	936	7
Land area	13045	916	7
Arable land	1345	186	14
Permanent crops	106	2	2
Permanent pastures	3395	239	7
Forest and woodland	4138	296	7
Other land	4061	193	5

Table 2. Agricultural production in the world and in the U.S.A. (FAO, 1995).

Production	World	USA	% of the world
	----million metric tons/yr---		
Cereals	1896	277	15
Wheat	541	59	11
Corn	515	187	36
Sorghum	54	12	22
Soybeans	126	59	47
Peanuts	28	2	7

Table 3. Major uses of croplnad in the U.S.A. (USDA-ERS, 1994).

Land use	1987	1993
	-------million hectares-------	
Cropland	188	158
Cropland used for crops	134	134
Cropland idled	28	24
Cropland used for pastures	26	---

Table 4. Contributions of U.S. agriculture to total emissions of greenhouse gases (US-EPA, 1995; DOE/EIA, 1996; Lal et al.,1998).

Source	US-EPA (1995)	DOE/EIA (1996)	Lal et al. (1998)
Total emissions	1666	1442	1597
Agricultural emissions	80	66	116
% of total	4.8	4.6	7.3

Table 5. Strategies of C sequestration in the U.S. cropland.

Strategies	Techniques
1. Conversion of marginal lands	(i) CRP, (ii) WRP, (iii) Conservation Buffers
2. Restoration of degraded soils	(i) Eroded soils, (ii) mineland soils, (iii) salt affected soils, (iv) soil contamination
3. Best Management Practices (BMPs)	(i) Conservation tillage and residue management, (ii) water management, (iii) fertilizer and organic manures, (iv) rotation and winter cover crops, (v) summer fallow elimination

Table 6. Potential of U.S. cropland for greenhouse effect mitigation (Lal et al., 1998).

Strategy	Potential (MMTC/yr)	% of total annual emissions of GHGs (116 MMT/yr)
1. C sequestration in soil	126	108
2. Fossil fuel off-set	12	11
3. Saving fossil fuel	1	1
4. Reduction in C emission by soil erosion	15	13

GRAINS AND OILSEEDS OUTLOOK FOR 1998
Acreage Shifts and Shifting Demand

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INTRODUCTION

Each outlook conference generally focuses on "issues of the day," issues that create uncertainties in our forecasts. We may know some uncertainties, such as policy tools, when we develop the forecasts; sometimes we can anticipate these and make adjustments. We know other uncertainties are unpredictable, such as weather conditions or shocks overseas; we are forced to adjust to these shocks "after the fact."

Two years ago the biggest unknown concerned farm policy. In 1996, we assumed a continuation of the then-current farm legislation--acreage reduction programs, target prices, deficiency payments, and a smaller CRP program than today's levels. The 1996 farm bill was signed soon after that outlook conference ended, and farmers planted more acres than we anticipated for wheat and soybeans. Was this in response to the new legislation giving farmers the "freedom to farm?" Most likely not. Higher-than-expected prices at planting time encouraged farmers to plant more and poor weather conditions in several regions of the country prompted farmers to change their crop mix.

Last year, we forecast the farm policies correctly, not too difficult considering farmers had to enroll in 7-year contracts the year before. Congress didn't make any changes to farm programs either. And we even predicted the correct enrollment level for the Conservation Reserve Program; again, an easy task because new enrollments and withdrawals were relatively small that year. Last year was the first in a long time that we could not blame subsequent policy changes for the "errors" in our baseline projections.

So, does this mean we correctly forecast acreage planted in 1997? No. For example, we underestimated soybean acreage by more than 6 million acres. Was this increase in response to the new legislation, higher prices or weather conditions? It's likely a combination of all three, but it's difficult to rank the relative importance of each. I'll attempt to address the issues raised by this question throughout this discussion.

The main unknown in last year's outlook speech was how farmers would adjust their plantings in response to changes in prices. China, as usual, was also a critical issue. This year I would like to continue the dialogue on planting flexibility, but switch the focus from China to other Asian countries. Not that China has ceased to be of concern, but South Korea and Southeast Asia have moved to the forefront.

Before focusing on the 1998 projections, I will examine land use in the United States to see if our long-term productive capacity and export competitiveness may be constrained. Then, I will look at the Department's projections of planted acreage for wheat, corn and soybeans we issued the past two years and see if we can learn lessons from our forecast "errors."

LAND USE, IDLED ACRES, AND EXPORTS

U.S. plantings of the principal crops in 1996 increased to the highest level since the mid-1980's--up about 16 million acres from 1995--and stayed at that level in 1997. Producers idled about 95 million acres of crop land the last 2 years--about 22 million acres in summer fallow, about 33 million acres idled in the Conservation Reserve Program, and an additional 40 million acres voluntarily idled by producers.

What changes in planted acreage and idled acreage can we expect for 1998? First, it is estimated that acreage in the Conservation Reserve Program will fall by about 2.3 million acres, freeing up that many acres to be planted in 1998. Despite the additional acres available for planting, we expect acreage planted to the major crops to fall slightly in 1998.

A few States will have fewer acres to plant because CRP participation increased in 1998, most notably about 525,000 acres in North Dakota. The biggest decline in CRP acreage is in Minnesota, falling by about 450,000 acres in 1998. From a regional perspective, only in the Northern Plains and Mountain States will CRP acreage be higher in 1998. The Corn Belt loses the most CRP acres, followed by the Lake States and the Southern Plains. The following table provides a regional comparison.

Change in CRP Enrollment: Crop Year 1997 to Crop Year 1998

Region	Change in CRP acres	Region	Change in CRP acres
Corn Belt	- 606,000	Appalachian	-225,000
Lake States	- 553,000	Delta	- 47,000
Southern Plains	- 421,000	Northeast	- 12,000
Southeast	- 396,000	Mountain	+84,000
Pacific	- 352,000	Northern Plains	+188,000
U.S.	- 2,340,000		preliminary

By 2001, acreage in the CRP is expected to increase by 3.6 million acres from 1997 to the authorized level of 36.4 million and remain at that level through 2007. Planted acreage of major crops in 2007 is forecast to increase by about 10 million acres from 1997. If summer fallow acreage holds steady and if crop land acres in the United States continue to decline by 1 million acres per year, at least 15 million acres would still be voluntarily idled by producers in 2007. The data suggests that there is additional land to plant to meet the expanding domestic and overseas markets.

LESSONS LEARNED ABOUT PLANTINGS AND REGIONAL ACREAGE SHIFTS

1996: The-16-million acre increase in plantings for 1996 primarily occurred for corn, wheat, sorghum and soybeans. Cotton, oats, and sunflower acreage declined. Producers reacted to both strong prices and weather-induced acreage shifts. Some producers substituted plantings of one crop for another crop; many others increased their overall acreage. Let's look at some examples:

- Producers in the Delta States doubled their corn plantings and cut back on their cotton acreage because price prospects for early harvested corn were excellent given the extremely low corn stocks at the end of the 1995/96 season.

- Corn Belt farmers increased corn, soybean, and wheat acreage; only oats acreage declined.

- Acreage of corn, soybeans, and wheat increased in the Northern Plain States while sunflower acreage declined there. Area planted to spring wheat (not including durum) was the largest since 1936 because of high prices and abundant moisture at planting time. The increase in spring wheat acreage by North Dakota farmers, the largest spring wheat State, was accomplished by planting less sunflowers and planting wheat on land that would normally have been summer fallowed.

- Sorghum acreage increased in Texas when producers replanted failed cotton acreage and acreage skyrocketed in Kansas when producers planted sorghum on abandoned winter wheat fields.

1997: U.S. plantings of principal crops in 1997 remained at 1996's level. Producers adjusted the mix of crops on their farms, but, on average, did not expand acreage as they did in 1996.

- The biggest acreage shifts in 1997--and the magnitude of the change caught everyone by surprise--was the 6.7-million-acre increase in soybean planted acreage. Soybean producers never had any acreage controls associated with their crop, but to the extent that acreage limitations for other crops limited the

expansion of soybean acreage, the 1996 farm law could have been partially responsible for the acreage increase. Very strong oilseed prices, modifications of farm rotations to include more soybeans, favorable planting conditions for soybeans, and problems getting other crops planted also led to this soybean acreage surge. Record acreage of soybeans in the Lake States, Corn Belt and Northern Plains displaced corn and wheat plantings in this region.

- Plantings of sorghum declined in 1997 because the crop was not replanted after failed acres of other crops.

- Cotton acreage declined for the second consecutive year because a cool, wet spring limited plantings and more favorable net return prospects for several competing crops. Cotton acreage fell throughout the country, except for a small increase in the Southeast, as a recent buildup in the cotton infrastructure of the region has supported acreage there and some area planted to corn in 1996 returned to cotton.

- Winter wheat acreage dropped to the lowest level since 1978 and was considerably below market expectations. Again, much can be explained by prices and weather-related conditions. Most States that expanded their wheat acreage in 1996 in response to rising prices scaled back wheat plantings the following year. Also limiting winter wheat plantings were late soybean and sorghum harvesting in 1996, disease concerns in the eastern Corn Belt, and dry weather in other regions of the country.

- Farmers planted the second highest spring wheat crop in modern times following the 1996 60-year high. Area had been expected to drop back to the 1995 level after increasing sharply in 1996 due to strong spring wheat prices. However, another spring price runup--due mostly to the mid-April 1997 freeze in the Southern Plains and severe flooding in the Red River Valley--apparently provided farmers sufficient incentive to increase 1997 plantings above their March intentions.

CHANGING DEMAND

Bulk Commodity versus High-value Product Exports: Agricultural exports are a key component of farm income, equal to about 30 percent of cash receipts and high-value product exports have become an important component of the trade picture. The value of high-value product exports surpassed that of bulk commodities earlier in the decade and it is anticipated that it will enjoy almost a two-thirds share 10 years from now. However, the growth in high-value product exports is not necessarily to the detriment of producers of bulk

commodities. Corn is heavily dependent on trade even though domestic use dwarfs the export volume of corn because much of the domestic use of corn ends up overseas through the export of livestock products. It is estimated that more than one-fourth of our corn and more than one-half of the soybeans moves overseas, either directly in bulk, as an intermediate product (soybean meal or oil), or indirectly through livestock and products.

The Asian Crisis: The current financial crisis in Asia raises concerns about its impact on U.S. agricultural exports, especially over the next few years. When USDA's long-term baseline was completed last November, the crisis was assumed to be limited to the four major Southeast Asian economies: Indonesia, Thailand, Malaysia and the Philippines. It was also assumed the impact would be relatively short-lived with the largest impact in Thailand. U.S. corn exports to the region were expected to be hurt the most, but after 2000 imports by this region were expected to return to the previously projected growth rates.

Economic forecasters have moved from an assumption of "minimal effect" to the reality that the crisis is spreading to other countries in the region, it will likely last longer, and it will have a greater impact on the economic performance on some U.S. businesses, including agriculture. However, forecasters cannot settle on a consensus regarding the depth, severity and expansiveness of the situation.

The importance of Asia to the economic well being of our farmers cannot be understated. The value of U.S. agricultural exports shipped to Asia was $23.8 billion in fiscal year 1997, or 41 percent of the total value of agricultural products we send overseas. We shipped almost $10 billion worth of wheat, coarse grains, and soybeans and products to Asia in fiscal year 1997.

The Asian crisis will directly reduce demand for U.S. agricultural exports because of a slowdown in the region's consumer spending and the declining value of the Asian currencies relative to the U.S. dollar. The declining value of the Asian currencies makes imports from the United States more expensive. Higher-valued U.S. exports to the region will be reduced more than exports of bulk commodities, particularly in the near term.

Overall, we estimate that the Asian crisis could reduce worldwide U.S. agricultural exports by 3 to 6 percent over the next two years from the levels that would have been if these countries maintained their rapid growth.

It is important to keep in mind that despite financial problems, Asia remains an important market with much potential. The factors that made Asia strong economically in the past will fuel its recovery in the future. These include a high rate of savings, low inflation, a well-educated population, and economies that, for the most part, have potential for strong growth after short-turn downturns. The medium-term fundamentals will become sound with institutional reforms that allow bankrupt firms and banks to be closed, with reductions in

government-directed investment, and with the elimination of monopolistic trade agencies. Ultimately, the *IMF*-led reforms in these countries will lead to more transparent, freer markets in which U.S. agricultural products will find it easier to compete.

OUTLOOK FOR 1998

The 1998/99 forecasts presented below are different from the projections contained in the publication *USDA Agricultural Baseline Projections to 2007.* The most recent forecasts were updated in mid-February, while the baseline projections to 2007 were developed last November. Tables 1 through 5 show the Department's current supply and demand projections for 1998/99 for wheat, corn, soybeans, soybean oil, and soybean meal. USDA's first official forecast for 1998/99 will be published in May, based in part, on survey-related data from *NASS* and attache reports from *FAS* offices overseas.

Overview for 1998: In comparison to the last few years, smaller changes in acreage are anticipated for 1998. Soybean and corn acreages are expected to increase marginally, while wheat acreage will likely contract. The extent of the decline in winter wheat acreage planted last fall, and reported last month, caught most by surprise. Little is noteworthy on the demand side for wheat; both domestic use and exports are expected to increase marginally. Corn exports are expected to rebound, with continued increases in domestic use. The outlook for soybeans can be characterized as a year of "records," including record levels of planted acreage, production, supplies, and total use. Another record crush is also expected for soybeans, but exports may decline marginally. Prices will likely fall or remain unchanged for wheat, corn, soybeans, soybean oil and meal, with dramatic price declines expected for soybeans and soybean meal.

Wheat Supply: Wheat planted acreage in 1998 is forecast to be 68.5 million acres, down 2.5 million acres from last year. Yields are expected to fall 1.7 bushels per acre below this year to a trend estimate of 38 bushels, as the record yield in winter wheat is not expected to be repeated. U.S. wheat production is expected to decline about 9 percent from this year, due to both fewer planted acres and the lower yield.

Winter wheat planted for harvest in 1998, as reported in the *Winter Wheat and Rye Seedings Report* released last month, is expected to be 46.6 million acres, 4 percent below 1997 and the lowest since 1973. We anticipate spring plantings (including durum) to be 21.9 million acres, down for the second consecutive year from the near-record established in 1996. Some of the decline in spring acreage is attributed to larger CRP enrollment in North Dakota and continued large oilseed acreage.

Hard red winter area accounted for most of the winter acreage decline, down 5 percent from last year. Except Oklahoma, plantings in the major producing States were all down. Montana

acreage declined to the lowest since 1941. Nebraska farmers may have planted the sma crop in its history. Kansas seedings are 700,000 acres below last year.

White winter wheat seedings were also down about 5 percent from a year ago. Idaho producers apparently planted the smallest crop in that state since the early 1970's.

Soft red winter wheat seedings were above 1997 because of increases from Arkansas through Illinois. In Ohio, acreage remains unchanged from 1997. In the southeast, wet conditions and late harvests delayed or even prevented wheat seedings. Many of those states are estimated to have reduced seedings from 1997.

Questions have arisen regarding the cause of the decline in winter wheat seedings and will continue until the *Prospective Plantings Report* is issued in March. The estimated level was about 2 million acres below the low end of the range of industry estimates released prior to the USDA report. Likely causes of the reduced plantings include:

- Producers switching to crops such as oilseeds and feed grains to improve crop rotation and because of better price expectations for other crops. Contributing to the shift may be increased flexibility provided under the 1996 farm law.

- Producers planning to increase their hay acreage, or even put the land in summer fallow.

Wheat Demand, Stocks and Prices: Despite smaller acreage, lower yields and a corresponding decline in production, 1998/99 is shaping up similarly to 1997. Bigger carryin stocks will offset the reduced production and cause total supplies to be about unchanged. Total use is expected to be up slightly from last year, with a small gain expected for domestic use. U.S. export volume is expected to increase marginally; the U.S. market share remains at about 30 percent and world trade is expected to be about unchanged. U.S. stocks are relatively unchanged, and prices will likely remain near the 1997 level of $3.45 a bushel.

Outlook for Global Wheat Trade: World trade in 1998 is expected to be little changed from this year's forecast. A continued increase in imports is expected in Latin America and the Middle East in response to economic growth. This will be offset by reductions in North Africa due the expectations of larger crops. The uncertain outlook for Asia will determine whether world trade rises or falls in 1998.

A significant portion of China's 1998 winter wheat crop was planted in dry soils, making spring moisture conditions critical. However, China's slow growth in wheat consumption and the large gain in wheat stocks from their record 1997 crop means large wheat imports are unlikely. Also, Indian imports depend upon growing conditions in coming months because of some poor weather conditions at planting. Less feed wheat is expected to be imported by

South Korea, and some Southeast Asian countries are likely to reduce imports. Indonesia is a key unknown, with imports depending on whether they maintain consumer subsidies.

For the competitors, area is expected to decline, but production is likely to be up because of the EU. Thus, the United States is expected to continue to face intense competition in world markets.

Corn Supply: Based on continued strong prices for corn, plantings are expected to climb slightly to 81.5 million acres, up 1.3 million from 1997. Trend yield analysis suggests that corn yields will average 130 bushels per acre. Corn production in 1998 is expected to increase to near 9.8 billion bushels, approaching the record crop of 10.1 billion in 1994. With carryin stocks estimated at 949 million bushels, corn supplies are projected at 10.75 billion bushels.

Corn Demand, Stocks and Prices: Corn demand for 1998 is projected at a record 9,735 million bushels, up 425 million from 1997. U.S. exports are projected up 275 million bushels, or up 7 million tons from this year.

Domestic use of corn is expected to increase 150 million bushels in 1998 to 7,835 million bushels. Feed use is estimated to reach 5,950 million bushels, up 100 million bushels. Food, seed, and industrial (FSI) uses of corn are expected to increase 50 million bushels to 1,885 million. Fuel ethanol production (a component of FSI use) is expected to account for 525 million bushels, up 10 million bushels from 1997, and corn used for sugars and starch is projected to increase 40 million bushels, accounting for 1,070 million bushels of FSI use.

Near term growth in ethanol production is limited, due to the uncertainty of the federal tax exemption for ethanol used in motor fuels. The tax exemption, which is about 54 cents per gallon of ethanol, is scheduled to expire on December 31, 2000. Expansion of ethanol production capacity in the near term is most likely to occur in States where State programs provide special investment incentives. Longer term growth depends on whether the excise tax exemption is renewed for ethanol beyond 2000.

Because projected corn production in 1998 exceeds expected use, corn ending stocks are projected to increase 65 million bushels to 1,014 million. The ending corn stocks-to-use ratio increases marginally to 10.4 percent, and the season average corn price is projected to be near $2.55 per bushel, or about unchanged from 1997.

Outlook for Global Corn Trade: Most of the increases in projected U.S. exports are due to reduced competition, with China the key. China is projected to drop from a net exporter of almost 5 million tons to a net importer of around 1 million. Eastern Europe's exports are likely to drop, and even Argentina is expected to export less than this year. Also, global imports are projected to show a small rise as income gains push up livestock demand and feed

ingredient imports for a number of countries. The aggregate imports for South Korea and Southeast Asia are assumed to be down only slightly from the current forecast for this year. Remember that most of the reduction in the forecast for 1997 exports in recent months has been because of larger competition from Argentina, China, and Eastern Europe. South Korea would have purchased feed wheat and corn from competing suppliers, even without a currency crisis. Also, there would have been a huge Argentine corn crop and large exports, with or without the Asian crisis.

Soybean Supply: Soybean planted acreage is expected to reach a record level of 71.5 million acres, compared with last year's 70.9 million and marginally above the previous record set in 1979. Soybean acreage is at levels last seen in the late 1970's and early 1980's when prices were record high and double-cropping was considerably higher. The biggest increases in soybean acreage in recent years have been in the Lake States and Northern Plains.

Using a 39.5 bushel per acre yield--up 0.5 from last year and second only to the 1994 level of 41.4--will result in a crop of 2,780 million bushels, 2 percent above last year's record of 2,727 million bushels. Total supplies are expected to be 3,028 million bushels, 6 percent above the record set in 1997.

Soybean and Products Demand, Stocks and Prices: Domestic crush in 1998 is expected to be 1,545 million bushels, 2 percent above last year. Exports are expected to decline to 945 million bushels, off about 2 percent from 1997, because of increased competitor supplies. U.S. ending stocks for 1998 are expected to increase to 400 million bushels, or 63 percent above the estimated 1997 level, and the highest level since 1986. Prospects for a record U.S. soybean crop and a large South American crop are expected to push soybean prices down $1.25 from this year, to about $5.25 per bushel and the lowest in more than 10 years.

As is the case for soybeans, the 1998 balance sheet for domestic soybean meal and oil is expected to show many records including production, total supplies, domestic use, and total use. Soybean oil exports are also expected to be at a record level. Continued strong global demand for soybean products, coupled with tightening global oil stocks is expected to keep soybean oil prices around 26.5 cents per pound, about the same as is estimated for 1997. However, soybean meal prices are expected to decline to around $160 per ton, down from an estimated $202.50 per ton in 1997.

Domestic prices for other oilseeds, such as sunflowers, canola, rapeseed, safflower, flaxseed, and cottonseed, will likely be higher relative to soybean prices because of the globally tight oil market. The value of these oilseeds is principally determined by the value of the oil they produce. Thus, with a strong global vegetable oil demand and reduced output, the prices of high oil-yielding crops should strengthen relative to soybeans.

Outlook for Global Soybean and Products Trade. Reduced prospects for U.S. soybean and soybean meal exports in 1998 are related to a strong rise in 1997 Southern Hemisphere soybean crops. These record crops harvested in the spring of 1998 are expected to hurt U.S. export prospects. This marks a big turnaround from the fall of 1997 when both Brazil and Argentina imported record amounts of U.S. soybeans. While U.S. exports are most seriously impacted in the October to March period of 1998/99, they may do much better in the following six months as new crop soybean production in South America stalls, with Argentina possibly retrenching as area planted to soybeans drops and yields are assumed to be more normal following this year's ideal growing conditions.

Foreign soybean meal use and imports will experience a reasonably good year, despite Asian financial woes. Soybean meal use could be up by 3.5 to 4 percent, compared to about a 5.5 percent growth in 1997. Soybean meal imports could grow 3.5 percent, compared to 6 percent in 1997. Chinese demand for soybean meal is forecast to remain strong, growing by around 10 percent and other non-Asian markets are anticipated to accelerate usage of soybean meal in response to good economic growth and much weaker soybean meal prices.

In contrast to soybeans and soybean meal use and trade abroad, soybean oil will likely do much better, with soybean oil trade up by 5 percent or more. Continued strong gains in Chinese consumption of vegetable oils, along with a marked slowdown in Southeast Asian palm oil production and exports, will support strong gains in soybean oil trade and use as well as for the high oil content seeds such as sunflowerseed and rapeseed. Global production of palm oil normally grows more than 1 million metric tons annually, but it grew only a modest 0.2 million tons in 1997. With dry weather continuing in the region, growth will likely continue to be weak into 1998.

CONCLUSION

We have seen how acreage increased in 1996 and stayed at that high level in 1997. Relatively strong prices, healthy yields and virtually no government restrictions (or inducements for that matter) encouraged producers to plant the greatest number of acres in 10 years. For the most part, the market has found a home for this "extra" acreage, even when the weather provided for record or near record yields. If the Asian crisis results in a moderate and short-term decline in U.S. agricultural exports, sufficient demand still exists to cause wheat and corn prices to remain firm, but weaker prices are anticipated for soybeans. In the longer-term outlook, we anticipate that continued global demand for our products will pull additional acreage into production, even with large enrollment in the CRP.

The trend in soybean acreage is particularly notable. Soybean acreage increased to levels last recorded in the late 1970's and early 1980's when prices were record high and double-cropping was considerably higher. And soybean acreage has not been at the expense of corn

acreage--a traditional trade-off--because corn acreage has also increased for 2 years running. Soybean acreage has even increased in the Southeast, Appalachia, and the Delta regions where there have been steady declines since peaking in the early 1980's. The biggest increases in soybean acreage in recent years have not been in prime soybean country, but in the Lake States and Northern Plains. This implies that traditional soybean growers are planting more acres and other growers are planting soybeans for the first time.

Because of the combination of current favorable soybean prices, relatively high yields, and rotation practices favoring more oilseeds, we expect soybean acreage to increase again in 1998. However, soybean prices will be pressured in 1998 because of increased acreage, a buildup in stocks, slack global demand for U.S. soybean meal and expected low meal prices. If soybean prices fall to $5.25 as we anticipate, everyone will be wondering how acreage will shift in response to *lower* prices. Since I won't be presenting the Department's outlook next year (they wouldn't ask someone to make presentations in consecutive years, would they?), stayed tuned to next year's Outlook Forum when a different speaker will be forced to address this tough question.

Table 1. Wheat: Supply, Demand, and Price

	1996/97	1997/98 [1/]	1998/99 [2/]
Area planted (million acres)	75.6	71.0	68.5
Area harvested	62.9	63.6	60.5
Yield (bushels/acre)	36.3	39.7	38.0
Production (million bushels)	2,285	2,527	2,300
Beginning Stocks	376	444	674
Imports	92	90	100
Supply	2,753	3,060	3,074
Feed and residual	314	300	300
Food, seed, & industrial	995	1,011	1,022
Total Domestic Use	1,309	1,311	1,322
Exports	1,001	1,075	1,100
Total Use	2,310	2,386	2,422
Ending Stocks	444	674	652
Farm Price (per bushel)	$4.30	$3.45	$3.45

1/ Forecast. 2/ Projected.

Table 2. Corn: Supply, Demand, and Price

	1996/97	1997/98 [1/]	1998/99 [2/]
Area planted (million acres)	79.5	80.2	81.5
Area harvested	73.1	73.7	75.3
Yield (bushels per acre)	127.1	127.0	130.0
Production (million bushels)	9,293	9,366	9,790
Beginning Stocks	426	883	949
Imports	13	10	10
Supply	9,733	10,259	10,749
Feed and residual	5,362	5,850	5,950
Food, seed, & industrial	1,692	1,835	1,885
Total Domestic Use	7,054	7,685	7,835
Exports	1,795	1,625	1,900
Total Use	8,849	9,310	9,735
Ending Stocks	883	949	1,014
Farm Price (per bushel)	$2.71	$2.55	$2.55

1/ Forecast. 2/ Projected.

Table 3. Soybeans: Supply, Demand, and Price

	1996/97	1997/98 [1/]	1998/99 [2/]
Area planted (million acres)	64.2	70.9	71.5
Area harvested	63.4	69.9	70.4
Yield (bushels per acre)	37.6	39.0	39.5
Production (million bushels)	2,382	2,727	2,780
Beginning Stocks	183	131	245
Imports	9	6	3
Supply	2,575	2,865	3,028
Crush	1,436	1,520	1,545
Seed and residual	125	140	138
Total Domestic Use	1,561	1,660	1,683
Exports	882	960	945
Total Use	2,443	2,620	2,628
Ending Stocks	131	245	400
Farm Price (per bushel)	$7.35	$6.50	$5.25

1/ Forecast. 2/ Projected.

Table 4. Soybean Oil: Supply, Demand, and Price

	1996/97	1997/98 [1/]	1998/99 [2/]
Beginning Stock (million pounds)	2,015	1,520	1,550
Production	15,743	16,970	17,305
Imports	53	60	70
Supply	17,811	18,550	18,925
Domestic Use	14,247	14,500	14,725
Exports	2,045	2,500	2,750
Total Use	16,291	17,000	17,475
Ending Stocks	1,520	1,550	1,450
Average Price (cents/pound)	22.5	26.0	26.0

Table 5: Soybean Meal: Supply, Demand and Price

	1996/97	1997/98 [1/]	1998/99 [2/]
Beginning Stocks (1000 short tons)	212	207	225
Production	34,209	35,843	36,650
Imports	102	125	100
Supply	34,523	36,175	36,975
Domestic Use	27,322	28,500	29,500
Exports	6,994	7,450	7,250
Total Use	34,316	35,950	36,750
Ending Stocks	207	225	225
Average Price ($/ton)	$270.90	$202.50	$160.00

1/ Forecast. 2/ Projected.

SLIDES

Grains and Oilseeds Outlook for 1998
Acreage Shifts and Shifting Demand
The USDA Perspective

Bradley Karmen
Farm Service Agency
February 24, 1998

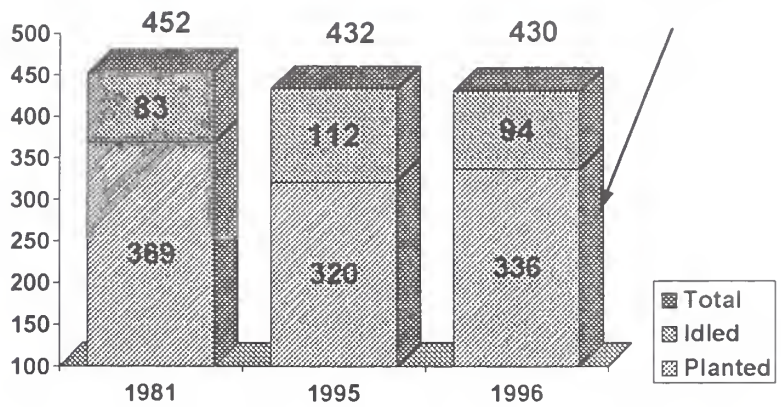
Acreage Shifts and Shifting Demand

- **Land Use and the CRP**
- **Acreage Shifts: Lessons Learned**
- **Shifting Demand**
- **1998 Supply and Demand Estimates**

U.S. Crop Land Use

million acres

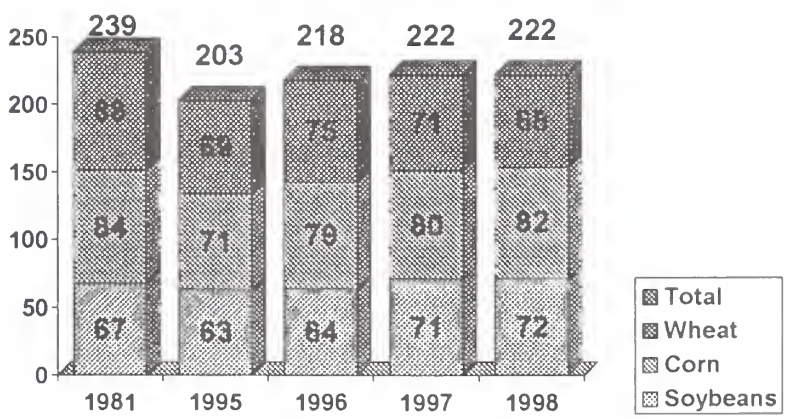
Note: 16 million acre increase in planted acres in 1996



U.S. Planted Acres

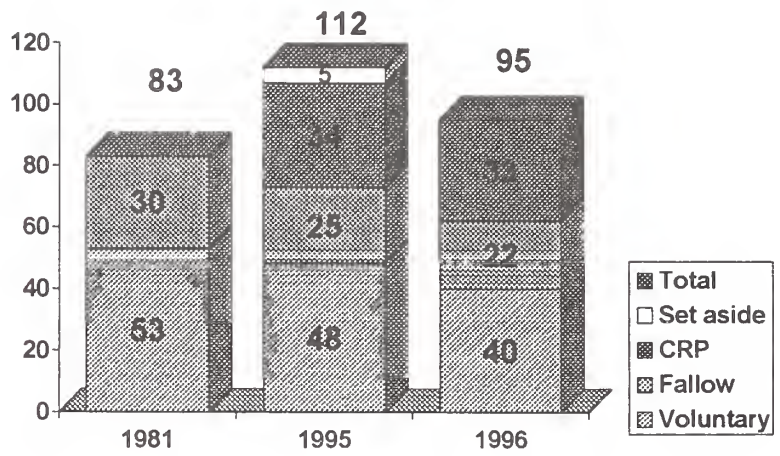
Corn, Soybeans & Wheat

million acres



Land Idled in the US

million acres



1996 Examples of Acreage Shifts

- 16 million acre increase in plantings
- Corn, wheat, sorghum and soybeans up
- Cotton, oats, sunflower down
- Delta: doubled corn acres, reduce cotton
- Sorghum: planted after failed cotton & wheat
- Corn Belt: higher corn, beans and wheat

1997 Examples of Acreage Shifts

- 6.7 million acre increase in soybeans
- Continued decline in cotton acres
- Bean acres increased most in Lake States and Northern Plains

  Also in Southeast, Appalachia and Delta where acres have been declining since 1980

More Examples of Acreage Shifts: Focus on Wheat

- Spring 1996: highest spring plantings since 1933
- Winter 1996: lowest winter plantings since 1978
- Spring 1997: 2nd highest spring plantings since 1933
- Winter 1997: lowest winter plantings since 1973

The Importance of Asia

- 41 percent of US agricultural exports go to Asia
- $10 billion of wheat, coarse grains, soybeans and products shipped to Asia
- Nearby decline in total US ag exports of 3 to 6 percent
- Longer-term export picture unchanged

Wheat Supply and Demand

	1997/98	1998/99
Area planted (million acres)	71.0	68.5
Yield (bushels/acre)	39.7	38.0
Production (million bushels)	2,527	2,300
Domestic Use	1,311	1,322
Exports	1,075	1,100
Ending Stocks	674	652
Farm Price (per bushel)	$3.45	$3.45

Corn Supply and Demand

	1997/98	1998/99
Area planted (million acres)	80.2	81.5
Yield (bushels/acre)	127	130
Production (million bushels)	9,366	9,790
Domestic Use	7,685	7,835
Exports	1,625	1,900
Ending Stocks	949	1,014
Farm Price (per bushel)	$2.55	$2.55

Soybean Supply and Demand

	1997/98	1998/99
Area planted (million acres)	70.9	71.5
Yield (bushels/acre)	39.0	39.5
Production (million bushels)	2,727	2,780
Domestic Use	1,660	1,683
Exports	960	945
Ending Stocks	245	400
Farm Price (per bushel)	$6.50	$5.25

Acreage Shifts: Lessons Learned

- Weather-induced changes: legislation always allowed farmers to respond
- Shifting between crops: 1996 farm bill gives producers more flexibility
- Planting more acres: Recent corn plantings equal or exceed base-acre constraints from 1990 law. Previous legislation may have indirectly reduced bean acres.

Prospects for 1999

- Current high prices cause soybean and corn acreage to increase in 1998.
- Slack demand for soybean meal and large soybean stocks in 1998 cause soybean prices to drop to $5.25.
- How will farmers respond to low prices in 1999?

1998 COARSE GRAINS AND WHEAT TOPICS

Dick Smetana
Director of Research, AgResource

Today, I will begin as a discussant regarding the USDA wheat and coarse grain presentation, but I would also like to present five additional observations for possible discussion as they relate to grains in general.

We at AgResource do not have any major disagreement with either the 1997/98 wheat or coarse grain demand projections other than slight changes in the export assessments. We believe that implicit in this year's analysis of corn is the assumption that China will become a significant importer of corn during the latter half of the marketing year, if the 1997 Chinese corn crop is truly 105 million tons. Secondly, we believe that the South African maize crop is closer to six million tons than the February USDA forecast of 7.5 million tons.

We do have problems with the 1998/99 analysis, as can be seen on the above corn supply/demand slide. The 1998 corn acreage is too high, given the present soybean to corn price ratio, on whatever basis one cares to equate the two crops (nearby on-farm or Chicago cash, nearby futures or new crop futures).

Farm Act of 1996 Implications

Our analysis would suggest that old models of these price relationships must now take into account the fact that the pre-1996 Farm Act history of the relationship implicitly included the corn deficiency payment. This allowed bean to corn ratios of 2.4 to 1 to be considered as acreage neutral. This is not the case any longer. As shown in the slide above, such ratios now foster the planting of beans at the expense of corn. Without a crop specific deficiency payment, corn requires a ratio in the 2.1 to 2.2 range to maintain its acreage base. To date the market has not indicated such a signal, and therefore, corn will lose acreage to soybeans again in 1998. Some of the loss in 1998 corn acreage in the Cornbelt will be offset by gains in the South at the expense of cotton and the shifting of Plains winter wheat acreage to feed grains. If the spring season begins under a threat of dryness (fostered by the rapid decline in the El Nino temperatures), the movement towards soybeans, and away from corn, could even be more severe than the 500,000 acres we are currently forecasting. Incidentally, the same scenario is partially responsible for the continuing loss of wheat acreage, as was amply demonstrated in the loss of 1.7 million winter wheat acres this past fall. **POINT - Wheat and corn, without their crop-specific deficiency payments, cannot compete on a level similar to pre-1996 Farm Act conditions.**

Another point I would like to emphasize is that under AgResource's estimate for the world 1998 coarse grain crop, we have a forecast of 928 million tons. But given a smaller

carryin and expected strong demand, the 1998/99 stocks buildup will not be large and the world will remain dependent on no major crop problems throughout the world during the 1998/99 season.

World Stocks and Market Volatility

This latter point, **minimal stocks**, carries a very important consequence, volatility. Carryover stocks, both world and U.S., for wheat and coarse grains are near historically low levels and will continue as such for the foreseeable future. This fact becomes evident in the above graph of world stocks of grain for both wheat and coarse grains. Note that during the past 20 years, the rest of the world's stocks of coarse grains have ranged between 75 to 100 million tons. Meanwhile, the U.S. contribution to world coarse grain stocks has ranged from 153 million tons in 1987 to a level of 14 million tons in 1996. The USDA, and as a result the United States, is no longer willing to maintain control of grain storage for the benefit of the entire world.

This becomes very evident in the accompanying slide, which depicts the amount of grain in the CCC inventory over the past two decades. Note that at the peak in 1987, there were 3.0 billion bushels present in CCC inventory (78 million tons). Included were 2.2 billion bushels of coarse grains, mostly corn, and three-quarters of a billion bushels of wheat. In addition in 1987, as seen in the next slide, the Farmer-Owned-Reserve, which was considered pseudo-government control of grain, reached 2.7 billion bushels (70 million tons), of which corn contributed 1.6 billion bushels. Together these two programs controlled 5.7 billion bushels, or 147 million metric tons of grain at its peak. Today, the combined grain under control of these two programs is 95 million bushels, with CCC wheat comprising 93 million bushels and corn two million.

The lack of USDA involvement in grain storage has reduced total U.S. grain stocks holdings. As a result, the current and recent stocks-to-use ratios of the grains lie on the left end of the accompanying price slide. Without the U.S. involvement in the storage business, lower stocks/use ratios will continually occur. **POINT - The present and future volatility of grain prices will be greater than in the past, as annually the location of future supply/demand/price curves will occur at the steep end of such charts, where small variations in perceived stocks will cause large ranges in prices changes. This is a hazard that will remain with us for the foreseeable future.**

The U.S. Storage Situation

My third point regards a situation that has crept up on the U.S. agricultural community, but it will impact on future years and could dominate both farmer planting and marketing decisions and those of the subsequent merchandising, storage and transportation of grains. The problem to which I am referring is the U.S. grain storage situation. This past fall, evidence of this problem was made manifest which when combined with a shortage of railcars in the Plains and Midwest, resulted in large piles of grain on the ground. Most saw this as a transportation problem, but underneath this transportation situation is a problem that is just asking for quality and logistical problems to develop due to the lack of storage space. There is enough blame to be thrown around to cover everyone in the business.

The above slide captures data from the January USDA stocks and storage report and indicates that the U.S. storage capacity has continued to decline over the past ten years, both on-farm and off-farm. It tells a tale of continued abandonment of grain storage, with only isolated increases of newly built facilities. During the past two years, off-farm stocks declined by 4.6 percent to 7.9 billion bushels, while on-farm storage declined by 2.0 percent to 10.9 billion bushels. This is not a new phenomenon; it has been going on since 1987 for on-farm storage and since 1986 for commercial storage. This represents an annual average decline of 259 million bushels in on-farm storage and 167 million bushels in off-farm storage.

On-Farm Storage

Prior to the mid-eighties, on-farm storage was in an expansive stage, sponsored by the USDA's Storage Facility and Equipment Loan Program. As seen in the next slide, the 10-year decline in on-farm storage has been the greatest, in absolute terms, in the Western Cornbelt, down one billion bushels, with declines of over 300 million in both Iowa and Minnesota. In relative terms, the on-farm storage decline has been even greater (over twenty percent) in the Southwest, the Southeast, the Pacific NW, and the Delta regions.

Off-Farm Storage

The story of off-farm storage is much the same. See the slide above. With the advent of the 1985 Farm Act, the government became an active entity in its disownership of grain stocks. An overwhelming proportion of USDA-CCC grain stocks were housed in commercial, off-farm storage. The advent of the 1988 drought allowed the CCC to accomplish this task more rapidly than had been planned. CCC inventory has continued its downward trend and is presently at 95 million bushels.

The off-farm grain storage decline has been most prominent in the Western Cornbelt and the Southwestern regions. Nebraska and Texas have experienced the largest absolute declines in off-farm storage. There are localized examples of replacement construction, but there appears to be no movement towards enlarging the U.S. commercial storage capacity.

The fact is that off-farm storage continues to decline in the face of rising production and demand trends for both corn and soybeans. Thus, the pipelines for both these dominant Cornbelt crops have fostered carrying charges to promote commercial storage. The obvious solution is to encourage the building of storage. Although all grains and oilseeds are forecast to have relatively tight carryouts, their respective markets have experienced wide carrying charges. This is one of the incentives that must be present on a regular basis to encourage the building of storage.

Where should this storage be located? There is the school of thought that the consumers of these grains - millers, processors and exporters - should maintain a greater degree of control over their sources of grain, particularly if future markets, as mentioned earlier, are destined to remain volatile. That would suggest that such consumers might be encouraged to expand their own storage to maintain control, to some degree, of their supply

requirements, as they foresee them to be, over the next decade. However, to offer the most efficient use of future storage, the most favorable site for newly built storage would be at the source - farms and local elevators. This would then allow the system the greatest degree of flexibility to satisfy future unforeseen demand. **The point is not whether a crunch will occur; rather, it's just a question of when.**

Funds and Prices

A fourth point. A funny thing happened on the way to price discovery over the past half year. It appears that the Funds, under the listing of Large Speculators, have played an enormous role in the price levels of the grains. Let me present two slides. Note that the price of wheat, in this case March wheat, has a definite relationship to the size of the Large Spec trade position. The correlation comes to 97 percent, and is significant. Just as striking is the comparison between the March corn price and the Large Spec net position. In this case, the correlation was over 82 percent. The soybean relationship is very strong at over 93 percent. Though the Large Spec position represents only 7 to 11 percent of corn open interest, at any given time, it is the Funds collective net position that moves the market to either side of a market neutral value. **The point is that the price channel, in which the price discovery of grains is being traded, has widened considerably during recent years due to the Funds. A fact that those in the market would not contest.**

Feeding Survey

A final plea. Those who know me will recognize this request. The grain industry needs a national survey on feeding. Such a survey should be on a state basis and should include feeding by grain-type and animal-type. Unaccountable residuals for the grains continually appear in the quarterly stocks reports. For corn, the residual can reach one billion bushels annually and has caused this inconsistent correlation of animal demand versus the quarterly feed-residual (calculated from the stocks report). Another example shows the recent history of the wheat feed-residual with back-to-back quarterly feed-residuals oscillating between quarters by nearly 500 million bushels, 20 percent of the entire wheat demand for a year. **The trade needs a better barometer of feeding demand, a sector that is responsible for over five billion bushels, or over 50 percent of grain's annual demand.**

There are other topics which are worthy of discussion such as the Southeast Asian situation and El Nino, but I'm sure they will come up in the following Q & A period.

Thank you again for this opportunity.

U.S. WHEAT SUPPLY / DEMAND

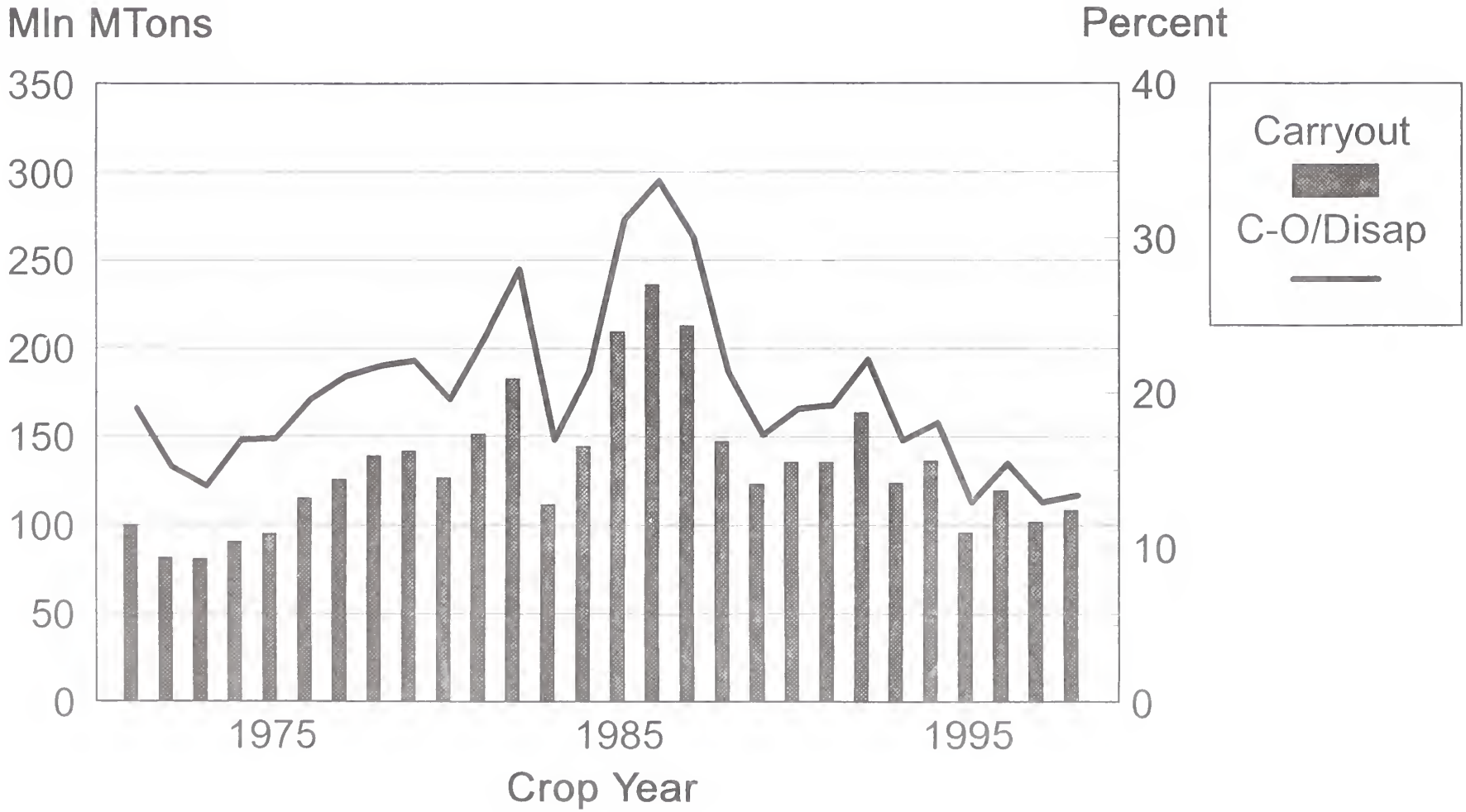
in million bushels

	1995/96	1996/97	USDA 1997/98	ARC 1997/98	ARC 1998/99
PLANTED ACRES, MLN	69.1	75.6	71.0	71.0	69.2
HARVESTED ACRES, MLN	60.9	62.9	63.6	63.6	61.5
YIELD, BU/ACRE	35.8	36.3	39.7	39.7	40.2
CARRYIN, JUNE 1	507	376	444	444	600
PRODUCTION	2,183	2,285	2,527	2,527	2,475
IMPORTS	68	92	90	88	90
TOTAL SUPPLY	2,758	2,753	3,061	3,059	3,165
FEED/RESIDUAL	153	314	300	310	327
FOOD	883	891	915	910	925
SEED	104	103	96	96	100
TOTAL DOMESTIC	1,140	1,308	1,542	1,316	1,352
EXPORTS	1,241	1,001	1,075	1,143	1,225
TOTAL DISAPPEARANCE	2,381	2,309	2,617	2,459	2,577
CARRYOUT, May 31	376	444	444	600	588
STOCK/USE, %	15.8%	19.2%	17.0%	24.4%	22.8%
Farmer Price, $/Bu	$4.55	$4.30	$3.50 $3.50	$3.57	$3.75

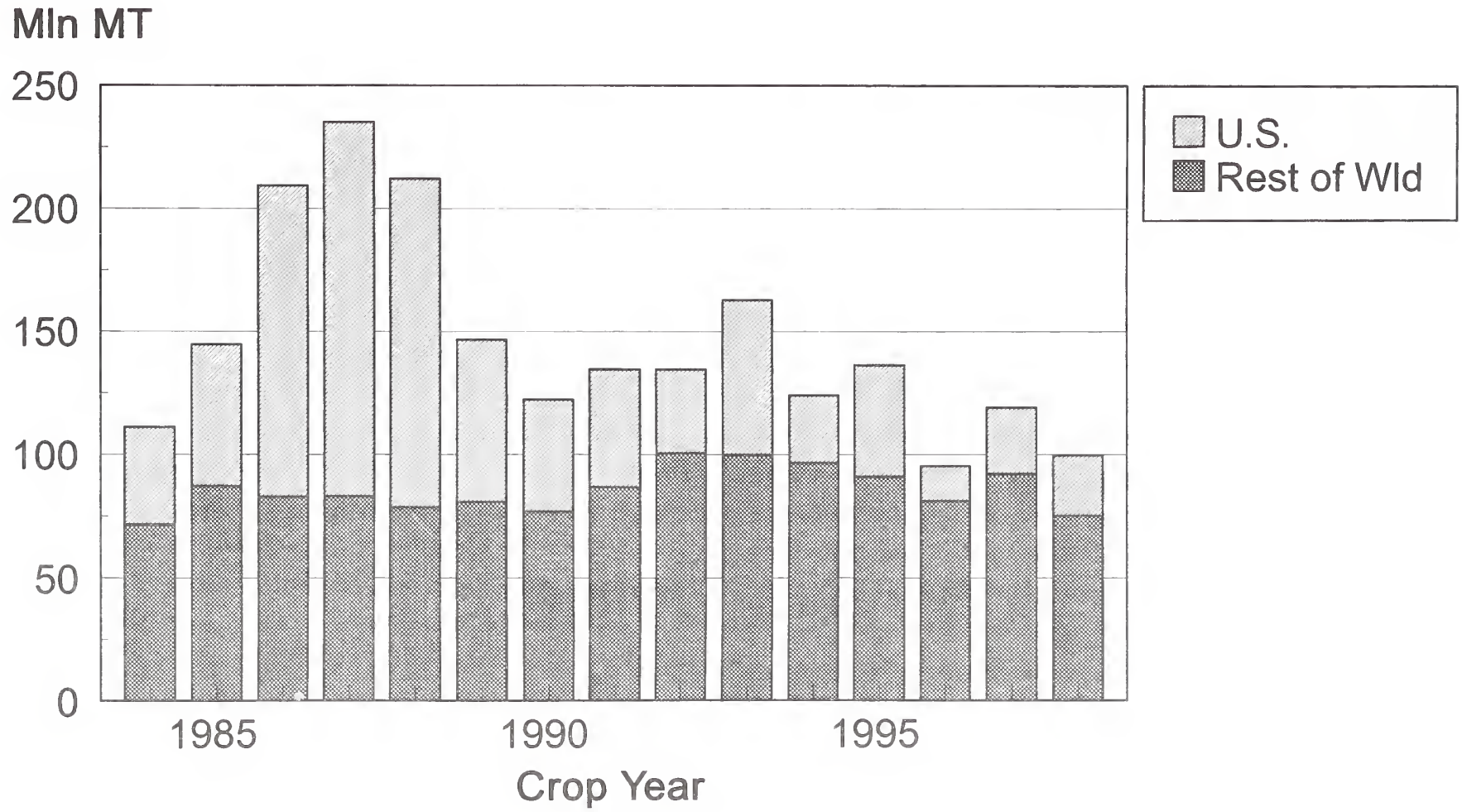
U.S. CORN SUPPLY / DEMAND
in million bushels

	1995/96	1996/97	USDA 1997/98	ARC 1997/98	ARC 1998/99
Planted Acres, Million	71.2	79.5	80.2	80.2	80.7
Harvest Acres, Million	65.0	73.1	73.7	73.7	74.2
Yield, Bushels/Acre	113.5	127.1	127.0	127.0	132.0
PRODUCTION	7,374	9,293	9,366	9,366	9,800
CARRYIN, SEPT 1	1,558	426	883	883	936
IMPORTS	16	13	10	10	10
TOTAL SUPPLY	8,948	9,733	10,259	10,259	10,747
FEED/RESIDUAL	4,697	5,364	5,850	5,847	5,900
FOOD/SEED/IND	1,598	1,691	1,835	1,830	1,893
TOTAL DOMESTIC	6,294	7,054	7,685	7,677	7,793
EXPORTS	2,228	1,795	1,625	1,645	1,875
TTL DISAPPEARANCE	8,522	8,849	9,310	9,322	9,668
CARRYOUT, AUG 31	426	883	949	936	1,078
STOCK/USE RATIO	5.0%	10.0%	10.2%	10.0%	11.2%
ON-FARM PRICE, $/BU	$3.24	$2.71	$2.45 $2.65	$2.65	$2.60

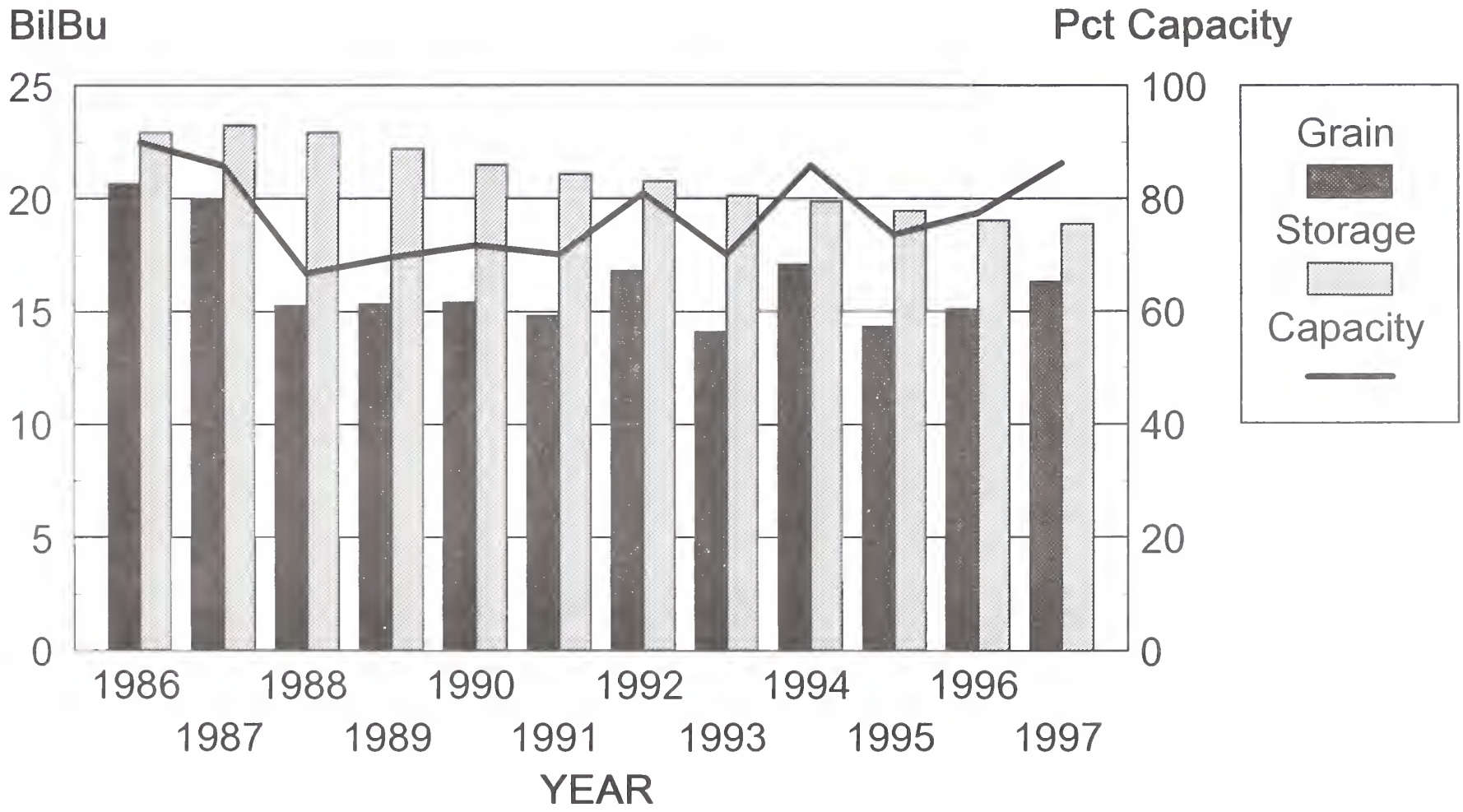
World Coarse Grain Stocks in million tons - % disappearance 1971 - 1999



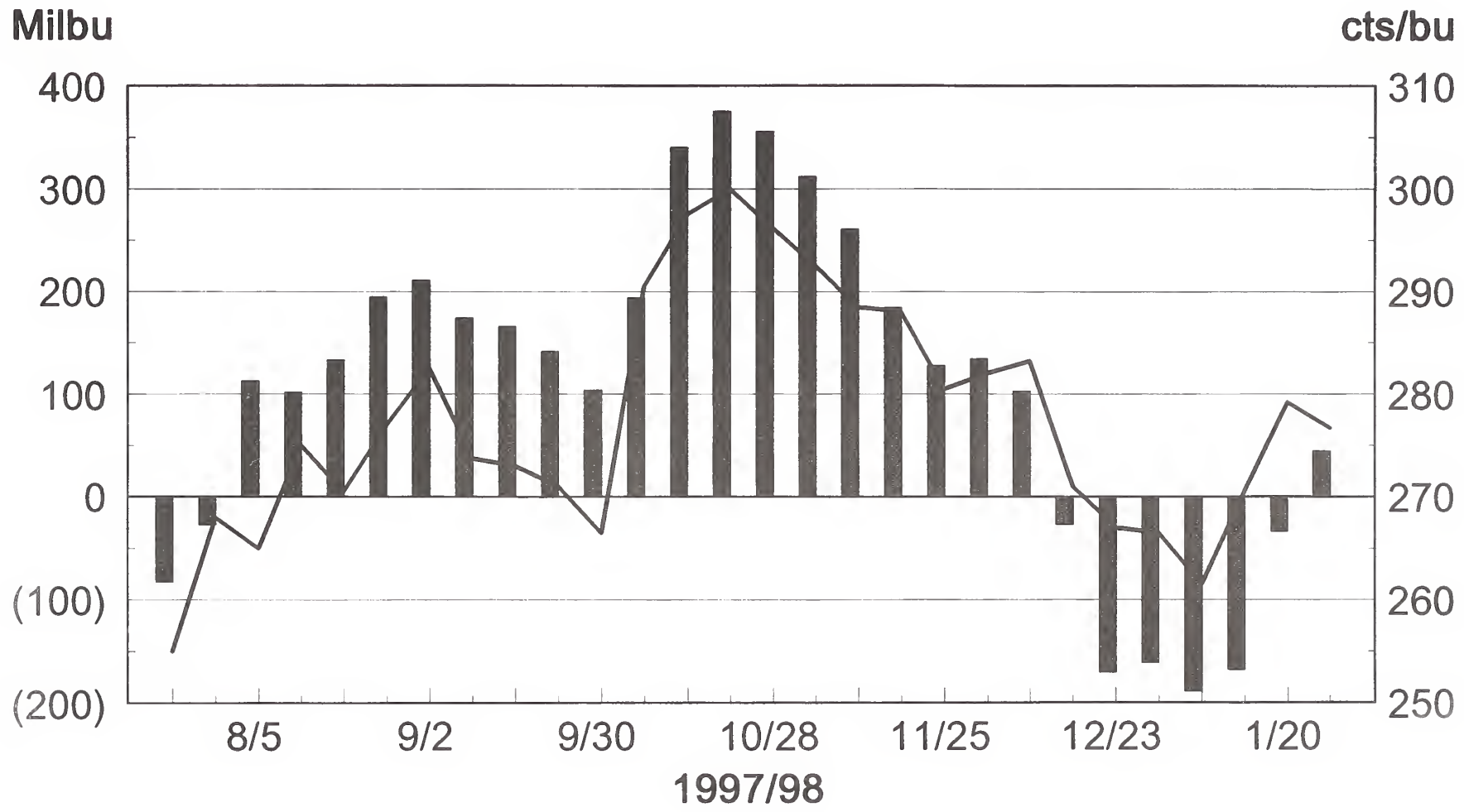
World -U.S. Coarse Grain Stocks
1983 - 1998
in million metric tons



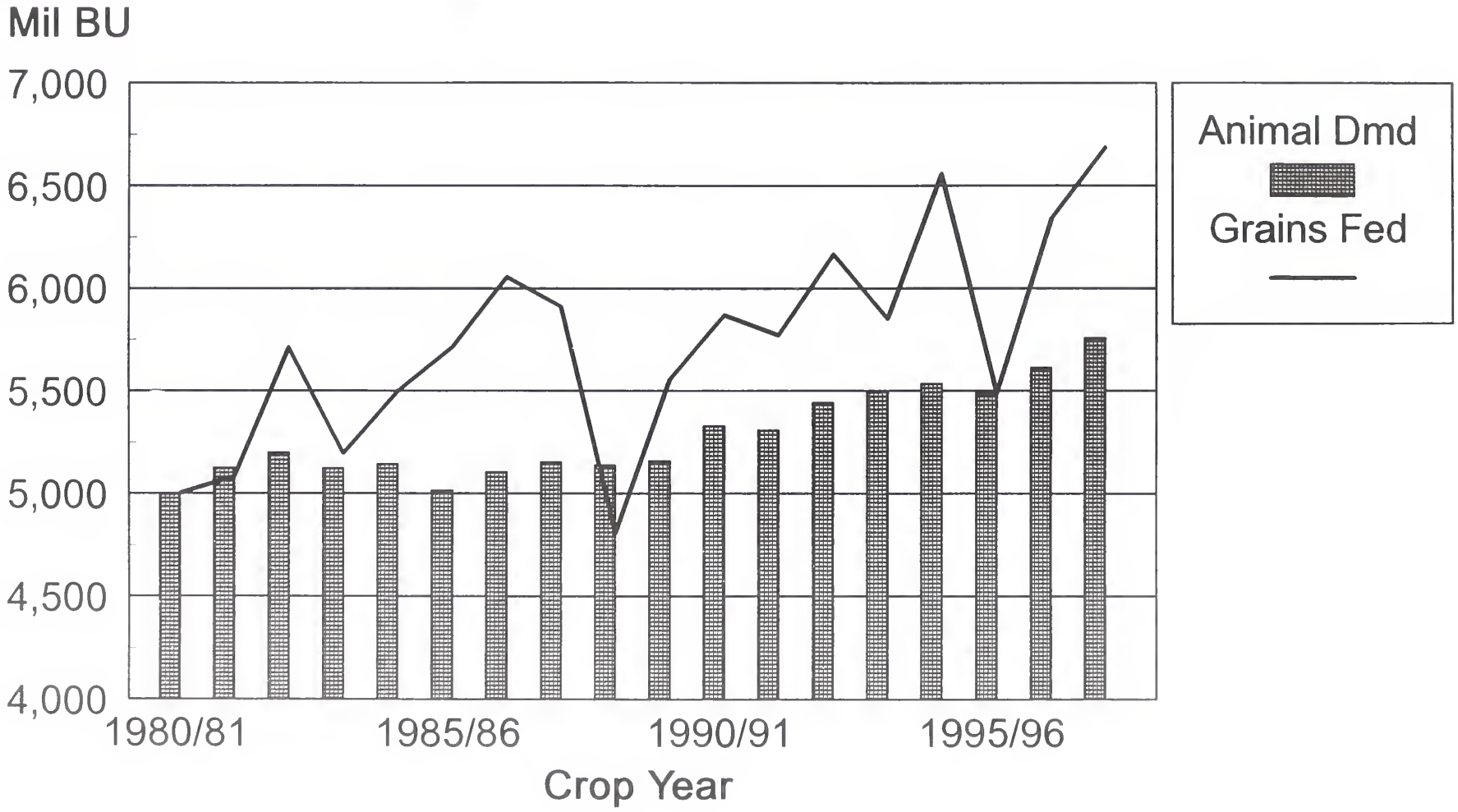
US Harvest Total Storage Situation
Pct Capacity -
Billion Bushels



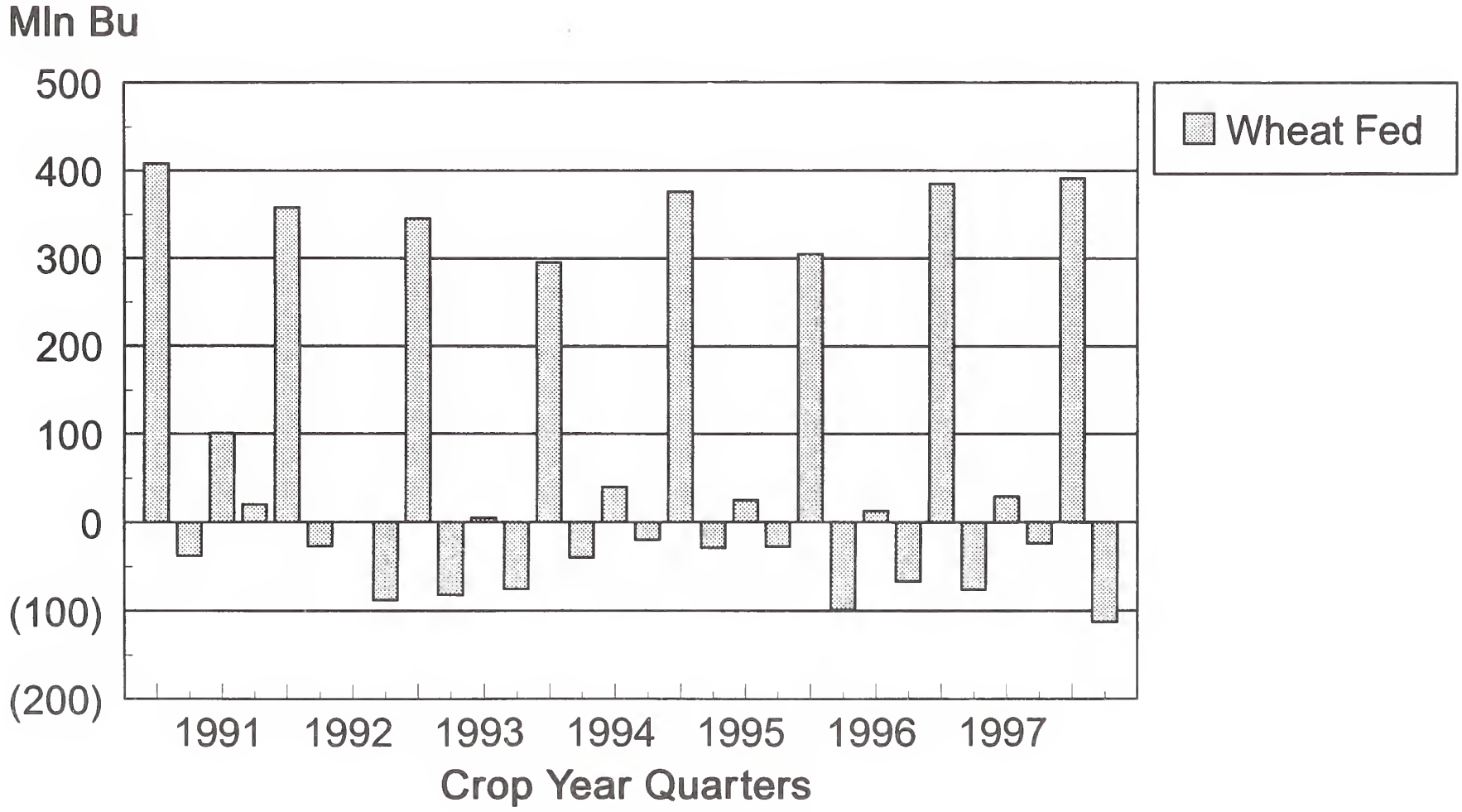
Large Spec (Funds) Net Corn Position in million bushels



5 Grain Feed-Residual vs Animal Feeding Demand in million bushels



Quarterly Wheat Feed-Residual in million bushels



THE FUTURE OF THE U.S. SUGAR INDUSTRY

David Berg
VP - Business Development
American Crystal Sugar Company

I. Introduction

Sugar industry is a mature industry producing a mature product.

There is little reason to expect major changes generated from inside the industry (compared to software, biotech, other industries driven by technological innovation).

Outside drivers will induce falling in three primary categories:

- cost efficiency
- industry structure
- policy initiatives

II. Cost efficiency

US Sugar industry has absorbed 20 years of inflation on raw material and operating side with no increase in price.

Some components of the industry have made significant investments in efficiency. *(Graphic showing increases in production per acre, beet & cane)*

Future trends: possible effects of low inflation or deflation
rationalization of underperforming or redundant assets

III. Industry structure

Significant concentration of market share has already occurred: *(Barry/Lord study showing increase in SOM held by top four producers).*

Question: Are mergers and consolidations occurring to achieve synergy or size?

Consolidation of suppliers has negated market positioning: Companies forced into role of "all things to all people".

Wild cards remain which could alter industry structure further:

Direct mill refining on cane side
Influence of vertical integration / direct producer marketing

IV Policy initiatives

The status quo: an efficient industry, with balanced sourcing, adequately serving intermediate & final customer needs.

Nevertheless, various groups wish to alter sweetener policy in US (and elsewhere).

industrial sweetener users - lower price
environmentalists - no sugar production in Florida
trade negotiators - elimination of trade barriers
Pope - open Cuba

V. Conclusions / Implications

We are a mature industry producing a mature product.

Changes will most likely come as a result of outside drivers, not due to internal factors.

Outside driver	Industry response	Possible result
capital markets	cost efficiency	profitability / survival / ???
macro trend toward business consolidation	sugar industry structure	shrink to irreducible minimum
outside influence on sweetener policy	policy revisions	integration of US into world markets

Change will be evolutionary, being driven by outside factors.

Nevertheless, change will continue:

Companies resisting change (efficiency, structure, policy) will be victims.
Companies responding positively to change will be survivors & winners.

The future of the sugar industry...

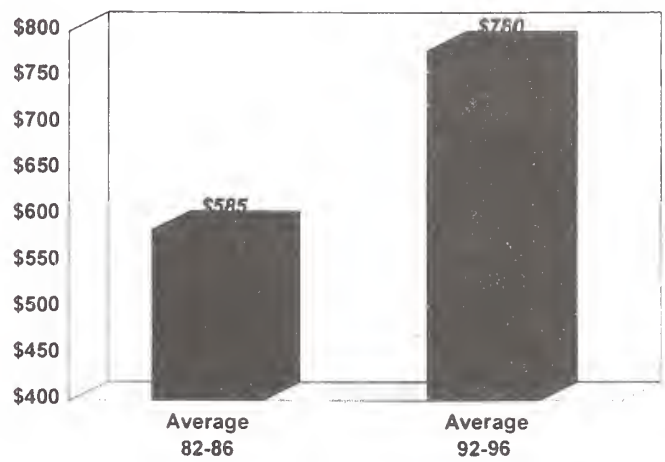
- A mature industry, making a mature product

- Three major areas of change:
  - cost efficiency
  - industry structure
  - policy initiatives

Cost efficiency

- Industry has absorbed 20 years of inflation with no increase in price

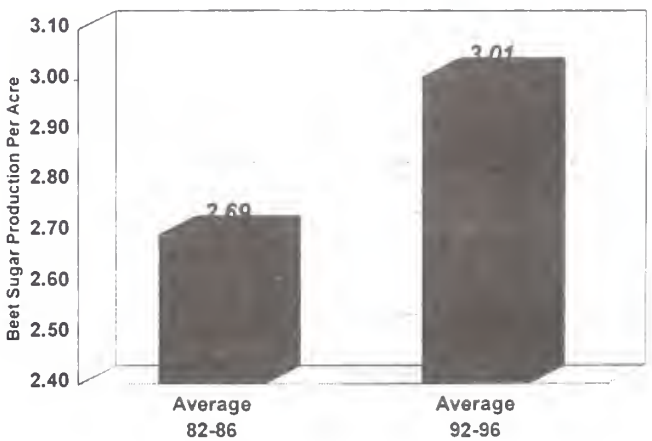
Inflation in sugarbeet production costs:
33% over past 10 years



Cost efficiency

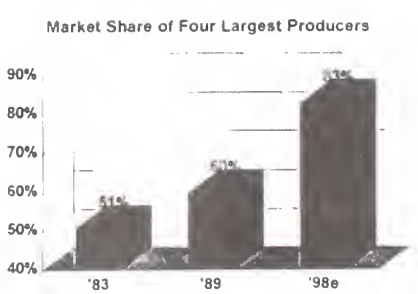
- Industry has absorbed 20 years of inflation with no increase in price
- Most segments have made major investments in productivity

Increased productivity: 12% over 10 years



Industry structure

- Market share concentration
- Synergy vs. size
- Market positioning



Policy initiatives

- Status quo:
  - industry is efficient
  - sourcing is balanced
  - serving intermediate & final customer needs

Policy initiatives

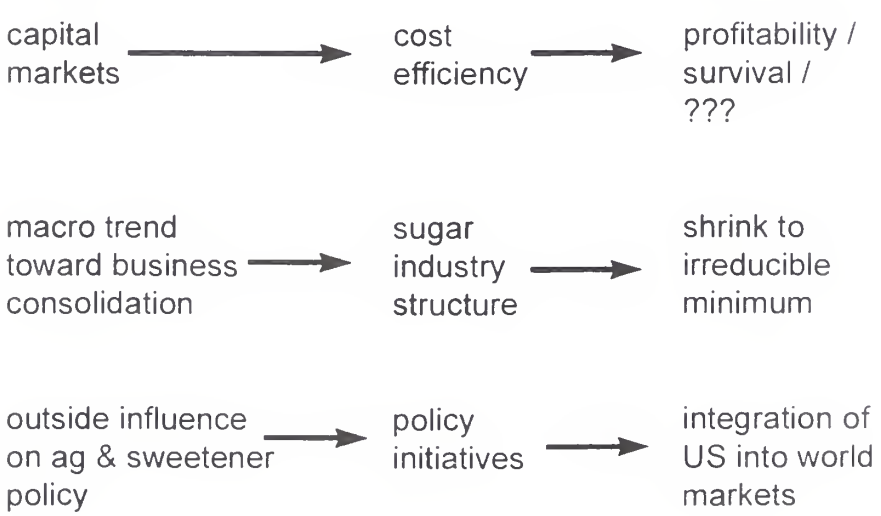
- Nevertheless--some groups continue to push for change:

industrial users	*lower price*
environmentalists	*end of sugar production in Florida*
trade negotiators	*end of ag trade barriers*
Pope	*open Cuba*

Conclusions / implications

- Repeat: a mature industry producing a mature product
- Changes will come in response to external drivers

Outside factors will induce change



When considering the future…

"We must become the
change we want to see"
Gandhi

or on the other hand…

"If we don't change
direction soon, we'll end
up where we're going."
Professor Irwin Corey

THE U.S. SUGAR INDUSTRY FROM THE POINT OF VIEW OF A CANE SUGAR REFINER

U.S.D.A. AGRICULTURE OUTLOOK CONFERENCE WASHINGTON, D.C. FEBRUARY 24, 1998

Margaret Blamberg, Ph.D.
Vice President
Domino Sugar Corporation
New York

First of all, I would like to express my thanks to the U.S.D.A. and the organizers of this conference, especially John Love of the World Board, for inviting me to address you today and for soliciting the comments of an independent cane sugar refiner on the future of our industry.

When this topic was first proposed, a colleague of mine suggested (not entirely tongue in cheek) that I might recast the question as, "Does the U.S. cane sugar refining industry, and with it the sugar industry as we know it, have a future?" Let me explain.

Since its inception, the U.S. sugar program has been prejudicial against the interests of cane refiners -- witness the decline in the number of cane refineries by half since 1981, when the current program began. Additionally, those remaining refineries often operate at far less than full capacity.

I would like to make one thing clear. Absent a sugar support program and with free access to the world market, cane refiners believe we could compete with any sugar producer in the world. And if we could not, it would be our own fault and we would have to bear the consequences.

We do not operate, however, in the mythical free market. Instead various sugar regimes, tariff barriers and so-called free trade associations predominate. Additionally, domestic producer/refiners -- the so-called "white-ends" made possible by the benefits accrued to producers by the sugar program -- challenge the traditional refining industry. With that perspective in mind, independent cane sugar refiners require reform of the sugar program in such a way that our needs are recognized and provided for within the context of the program -- until such time as the programs for sugar and other supported crops disappear.

Such an approach is for the good not only of the cane refining industry, but for the industrial users, consumers and the sugar industry as a whole. We all know that cane refiners provide elasticity in the system, running at full capacity to fulfill domestic needs whenever nature delivers a poor beet sugar outturn. Even more to the point, a further decline in refining capacity will jeopardize the nation's sugar supply more than in the past since beet expansion is taking place in regions that are most susceptible to the vagaries of weather. As reliance on cane white-ends grows, the prospect of a poor domestic cane crop further emphasizes the need for sufficient independent capacity capable of refining imported raws. Without sufficient cane refining capacity, industrial users would be forced to rely on imported refined sugar -- with its inherent problems of timeliness and quality for consumers and in direct competition with domestic beet processors and cane producer/refiners.

In 1996, the Senate and House Appropriations Committees requested that the Secretary of Agriculture file a biannual report on the operation of the sugar program. In his most recent report at the beginning of this year, Secretary Glickman stated that the objective of the program is "... to assure an adequate supply of sugar for the citizens of the United States at reasonable prices."

Recognizing that refiners need two things -- an adequate supply of raw materials at a reasonable price, the U.S.D.A. has made strides in achieving the latter of these two objectives. At the urging of the Appropriations Committees the Department promulgated a formula for determining quota increases based on the stock/use ratio of 15.5% in an effort to depoliticize the quota calculation. Thus far, the system has worked well, with #14 prices moving in a relatively stable and modest band as the quota self-adjusts over time.

The U.S.D.A. is to be commended for this policy. At the same time, it should be recognized that there still remains much room for "politics" in the WASDE (World Agriculture Supply and Demand Estimate) numbers, which determine the size of the quota, particularly in estimates of domestic production early in the quota year and the always elusive estimate of sugar blend imports. (It would be even better for U.S. Customs to prohibit the importation of "designer" blends altogether, such as the current influx of sugar molasses mixtures.) We urge the Department to continue to hew strictly to its goal of keeping quota calculations as objective as possible, especially when the statistics suggest that we are on the cusp of a quota increase, as occurred last month. "Transparency" must be preserved.

The question of an adequate supply of sugar is even thornier than the current issue of WASDE-inspired quota increases. Most disturbing to refiners is the free fall in which the import quota currently finds itself. The reduction of the quota from 2.3 million short tons, raw value, in1995/96 to 2.1 million tons last year, to 1.6 million tons or less this year not only causes current hardship for refiners but presages even more declines if crops in the beet sector continue to grow due to expanded acreage and the use of genetically-modified seeds.

The prospect of recourse loans below 1.5 million tons and a WTO-mandated minimum quota of 1.25 million tons provides cold comfort for refiners. Since many beet processors do not use the loan program, the Department may not feel constrained from setting the quota below1.5 million tons in future years. A calculation indicates that the independent refining industry would sustain a capacity utilization level of no more than about 65% by 2000, given a beet crop of 4.5 million tons, white-end production of 1.0 million tons and an import quota of even as much as 2.0 million tons. Such a scenario would presage still more refinery closings, unless a solution to the supply problem is found. Some alternative must be found to provide the cane refining industry with sufficient raw material to keep us afloat -- for the good of consumers, industrial users and the program itself.

Let me turn now to two subsidiary, but nonetheless important, issues about the import quota: shortfalls and quality.

Each year between 4%and 6% of the import quota fails to enter because countries are unable or unwilling to fulfill their allocations. Most countries on this list have not filled their quotas for many years, if ever. With refiners, of necessity, chasing every pound of raw material available within the system, it is imperative that the Department develop an automatic mechanism for the annual redistribution of shortfalls, preferably on a global basis. This approach was adopted on a trial basis for one year, with excellent results.

The quality issue is a much neglected, but an equally important problem. The import quota system by its very nature provides an incentive for exporters to ship their poorest quality sugar to the United States, while reserving better cargoes for choosier world market destinations. Incentives need to be built into the program that reward better quality shippers, even going as far as quota reallocations if need be.

Two important issues remain to be considered, namely, the NAFTA and trade with our other hemispheric neighbors such as the MERCOSUR countries and Cuba.

At present, it appears that talks have broken down between the U.S.T.R. and Mexico's Ministry of Commerce over the HFCS/sugar dispute, following Mexico's issuance of its final determination on countervailing duties for HFCS. Leaving aside the demand by U.S. manufacturers of HFCS that Mexico honor the original terms of the NAFTA which call for declining duties on high fructose corn syrup, cane refiners as well as other elements of the U.S. sugar industry have a keen stake in this issue as well.

With Mexico seeking a *quid pro quo* in terms of greater sugar access into the United States in return for freer HFCS entry into Mexico, U.S. refiners view this issue as an ideal opportunity to clarify the original NAFTA sweetener side-letter of November 1993 by seeking agreement from Mexico that all additional sugar imports above the current 25,000 ton per annum level consist only of raw cane sugar. We, therefore, call

upon U.S.T.R. to pursue a negotiated settlement to the current dispute for the sake of the U.S. sugar industry as well as HFCS producers.

Even if Mexico and the United States do not agree to increased sugar access between now and 2001, it is imperative that a "raws only" understanding be reached before Mexico's sugar quota increases tenfold, to 250,000 tons, in three years' time. Additionally, it must be made clear to all parties that Mexican *estandar* sugar be permitted to enter the United States "for further refining only" to preserve quality standards for U.S. consumers and industrial users as well as preserving throughput for U.S. refiners.

Under the terms of the NAFTA, free trade in sugar is supposed to commence between the United States and Mexico in 2007, but it is often forgotten that such free trade is to take place within the context of the harmonization of sugar programs between the two countries. Debate should begin soon as to possible to determine whether such harmonization should take place in a free trade or a supported environment.

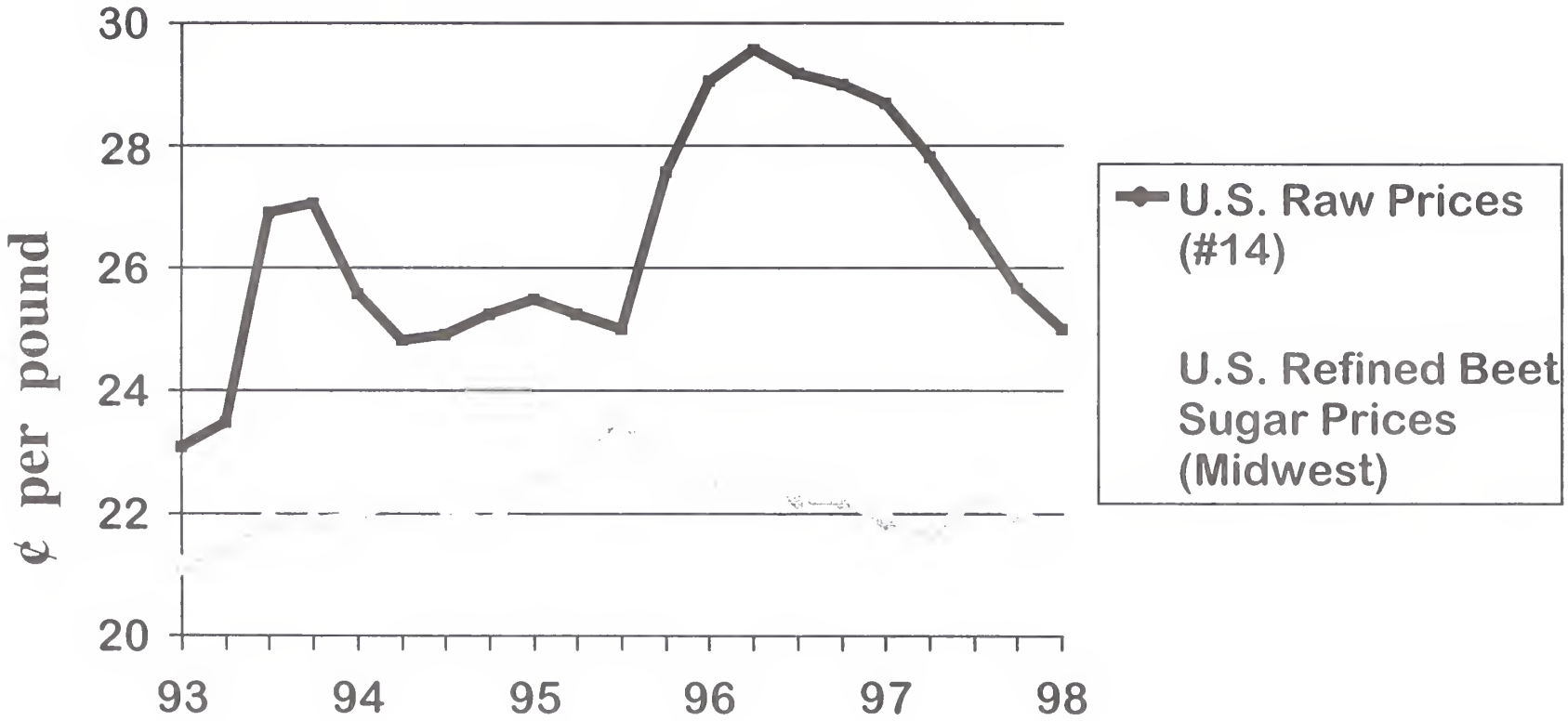
Regarding Cuba, the embargo will be lifted at some time in the future -- although we do not know when or under what circumstances this will occur. We urge the relevant agencies within the Administration as well as the appropriate Congressional committees to enter into talks with the U.S. sugar industry, especially the cane refiners, to develop a contingency plan for the time when trade with Cuba resumes. Independent cane refiners are obviously the linchpin of any such plan since we will provide the market for Cuban sugar exports, which -- as in the case of Mexico -- must be raws. The same criteria applies to MERCOSUR and other free trade regions.

To sum up: Going into the twenty-first century, a healthy U.S. sugar industry depends on the elasticity provided by independent cane refiners. Yet, cane refiners are an endangered species due to restricted access to raw cane sugar caused by the import quota system. While the U.S.D.A. is to be commended for its stock/use ratio formulation and should be encouraged to make the system a permanent part of the administration of the program, the supply question still needs to be addressed.

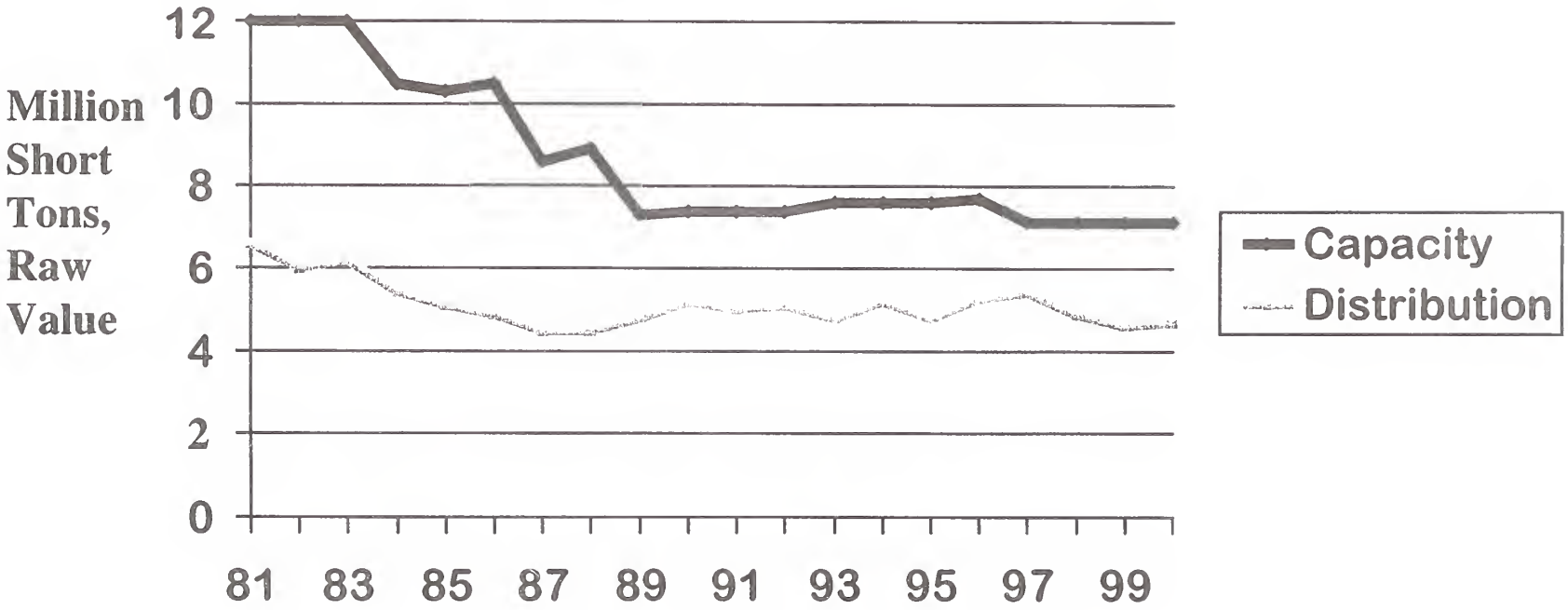
Attention to the size of the quota, shortfalls, quality problems, blends from Canada and longer range issues regarding the NAFTA and Cuba all point to a much larger issue -- the need for a fresh look at and a complete revamping of the quota system.

As independent refiners adapt to the challenges posed by the new realities of white-ends, we do not need to do so with one hand tied behind our backs. It is time to take a hard look at the restrictive and outmoded import quota system.

SPREAD BETWEEN REFINED BEET SUGAR PRICES AND #14 MARKET

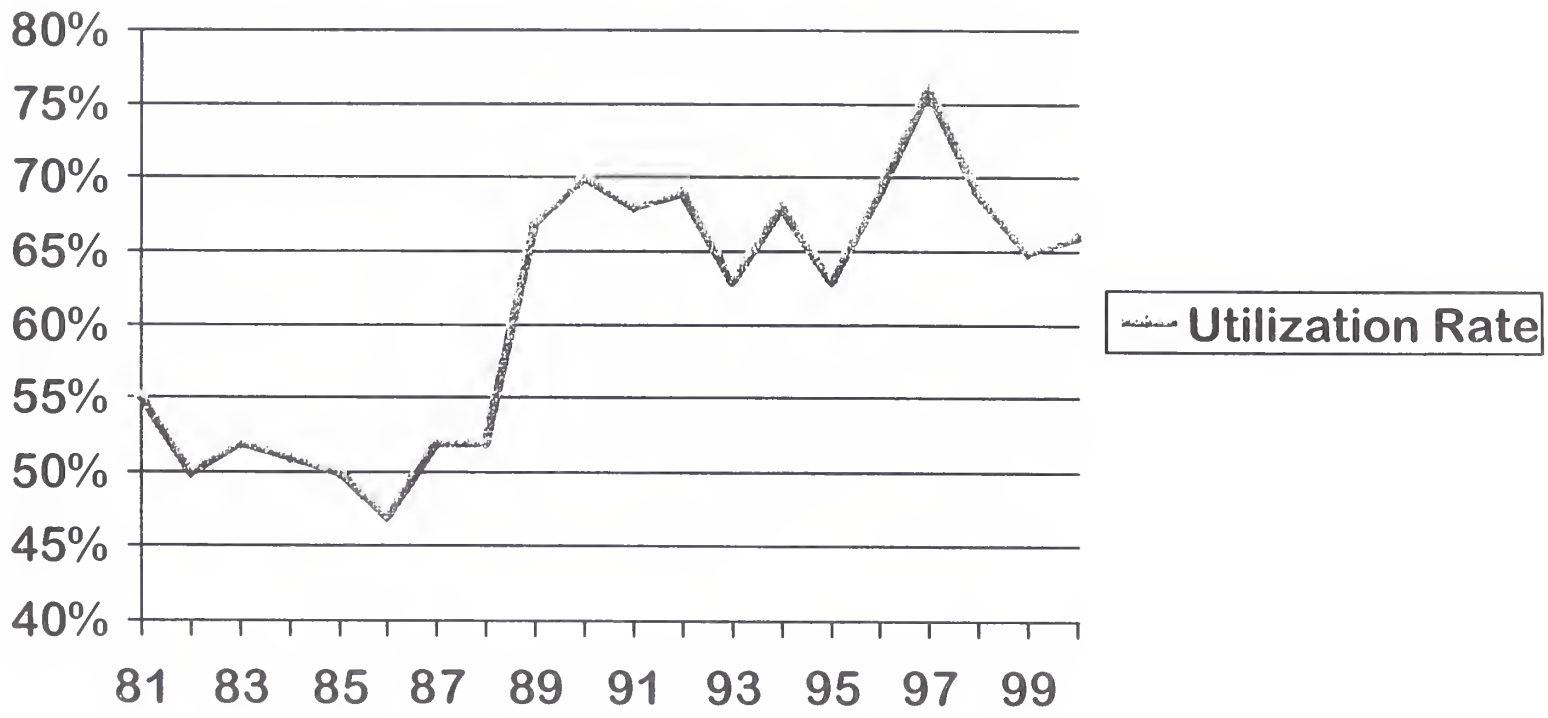


U.S. CANE REFINERS' CAPACITY UTILIZATION

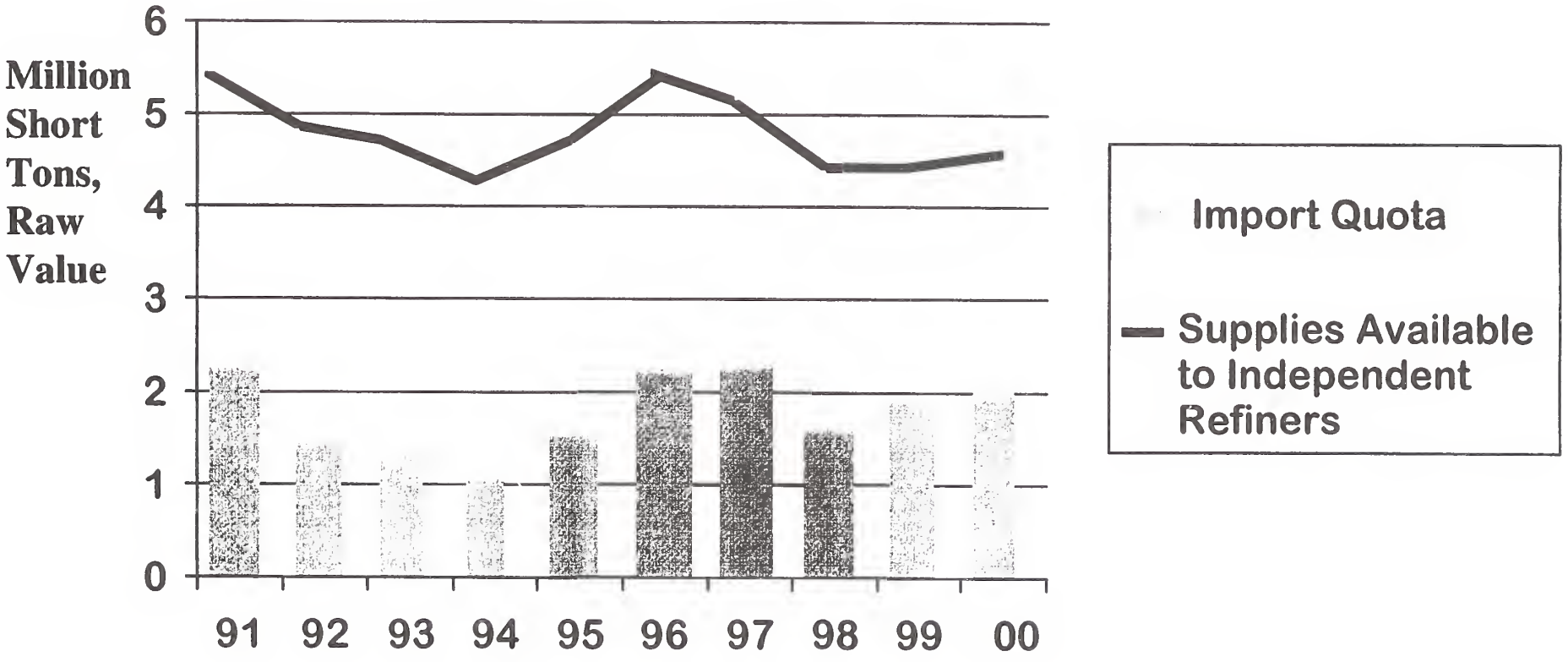


Capacity = 350 Days
Volume Excludes Re-Exports
Distribution is for Independent Refiners

U.S. CANE REFINERS' UTILIZATION RATE



U.S. IMPORT QUOTA: REVIEW AND PROSPECTS



MARKET INFORMATION NEEDS OF THE 21ST CENTURY: WHERE DOES THE FEDERAL GOVERNMENT FIT?

Ewen M. Wilson
Chief, Company Statistics Division, Bureau of the Census

The part that I have been asked to play on this panel is that of a federal government information provider. While the general focus of the panel has been the information needs of United States agriculture, I have been invited to comment on economic statistics in general.

My perspective comes from a background as a data user with a national trade association; an information provider overseeing USDA's economics and statistics programs; and from my current position as head of the Census Bureau's Company Statistics Division. When I joined the Census Bureau nearly four years ago, one of my responsibilities was the Census of Agriculture. Last year that program was moved to USDA, effectively consolidating all federal data on farms and ranches in one place - at the National Agricultural Statistics Service. The Census Bureau continues to collect data from non-farm business establishments that account for 98 percent of the United States economy, including agri-business beyond the farm gate.

The 1997 economic and agriculture censuses are now underway. Conducted every five years these censuses provide the statistical framework to measure economic activity in the United States. This is a massive statistical undertaking eclipsed in size only by the decennial census of population which will next take place in the year 2000.

The population census is what most people associate with the Census Bureau. It is required by the Constitution for apportionment of seats in the United States House of Representatives, and consequently, is subject to unrelenting political scrutiny. It's what you read about in the papers. But economic statistics collected by the Bureau also are subject to intense scrutiny - by the marketplace. In the financial press at least, the latest economic indicators are closely watched, and unexpected numbers move the markets.

The economic census currently being conducted is the bedrock for all statistics that measure the nation's economic performance. It provides the underlying foundation for the national income and product accounts maintained by our sister agency in the Department of Commerce, the Bureau of Economic Analysis (BEA). Quarterly estimates of GDP produced by BEA rely on a series of current surveys designated by OMB as economic indicators. These surveys are like a thermometer reading the current temperature of the economy. But the economic census is needed every five years to calibrate the thermometer and ensure the accuracy of measurement.

The census provides a benchmark, without which it would be difficult to have confidence that the current economic indicators are not drifting off-course and causing statistical discrepancy.

The economic census gathers information on 21 million business establishments in the United States. Not all of them get questionnaires. For 16 of the 21 million businesses we simply extract selected data from administrative records. That cuts the reporting burden on American business enormously. About 5 million establishments - by establishment I mean an individual plant, an individual store, an individual warehouse, an individual service provider - actually received questionnaires last December. These questionnaires range from a short classification form which go to small businesses and take less than 15 minutes to fill out, to detailed long forms which go to a relatively small number of large businesses. The forms are tailored to type of business, so a meat processor and a flour miller get questions that apply only to their businesses. We sent out 475 different versions of the form.

Apart from its sheer size, the most significant feature of the 1997 economic census is that it will adopt an entirely new industry classification system. The new system - the North American Industry Classification System (NAICS) - will replace the Standard Industrial Classification (SIC) system that had been in place since the 1930s. NAICS is designed to account for the enormous changes in the global economy. It reflects the technological revolution we are undergoing, as well as the growth and diversification of services that have marked recent decades. For instance it creates an information sector by grouping together industries that develop, distribute and provide access to information including satellite, cellular and pager communications, on-line services, software and database publishing, along with the more traditional industries like sound recording, motion picture, radio, and television. It recognizes new ways of doing business such as warehouse clubs, pet supply stores, diet and weight reduction centers, and environmental consulting. And it recognizes industries that rely on human capital such as legal, architectural, engineering, interior design and advertising services by combining them in a new professional, scientific and technical services sector. Finally the classification system was developed in conjunction with our major trading partners in this hemisphere - Canada and Mexico - which will enable better comparisons of our economy with that of our NAFTA partners.

Public reaction to NAICS has generally been positive. Data users recognize that the new industry classification system will be more relevant to today's economy. Under the SIC system a large and growing segment of economic activity in this country was lumped in a catch all category, "not elsewhere classified." From a statistical stand point it was an embarrassment that so many new industries could only be described as "other." NAICS will fix that. By adding about 350 new, high-tech, or emerging industries, including greatly expanded coverage of service industries, NAICS gives us an industrial framework that should be relevant well into the next century.

On the other hand there will be breaks in certain data series due to the new groupings of industries. And at the more detailed geographic level it may not be possible to make valid time series comparisons. The Census Bureau will produce bridge tables for all industries at the national level, which will cross tabulate data by both the old and new classification system. And

comparative statistics tables will present the new data on an SIC basis at both the national and state level, which will enable data users to compare 1997 results with earlier censuses.

Another significant feature of the 1997 Economic Census is that it will be the first to be published primarily on the Internet. Faced with declining resources the Census Bureau surveyed customers and made a strategic decision to fully embrace the information age. Only highlights of the economic census will be published in paper reports. Detailed data will be available on CD-ROMs and the Internet. Both CD-ROMs and the Internet will offer "point and click" access to Census data in a "database" format that allow you to download and manipulate data. You will also have access to "viewable" formats that allow you to view or print tables similar to the detailed reports from previous censuses. Our intention is to issue an all new "Advance Report" in early 1999, which will provide a first look at Census results almost a year earlier than data have been available for past censuses.

For those of you who work in the agricultural sector, the economic census provides a comprehensive picture of agri-business beyond the farm gate. It measures the economic activity of food processors, the food distribution system, supermarkets, restaurants and export brokers as well as businesses providing inputs to farms such as tractors, chemicals, seeds and services. I know that many of my former colleagues in the Economic Research Service rely on these data for their work.

I hope this brief overview gives you a flavor of the 1997 economic census. I look forward to the panel discussion.